



# *SOFTWARE AND DEVELOPMENT TOOLS*

QUARTER 3, 2003  
SG1011/D REV 0

[WWW.MOTOROLA.COM/SEMICONDUCTORS](http://WWW.MOTOROLA.COM/SEMICONDUCTORS)

# About This Revision—Q3/2003

A summary of new information is provided in this section. In addition, a change bar appears in the left margin of every page referenced in this section to mark the location of new information.

If products are discontinued, a *What's EOL?* page is included at the end of this guide. The *What's EOL?* page lists end-of-life products along with their respective last order date, last ship date, and suggested possible replacement information.

## NEW PRODUCTS

| Product           | Page Number | Description   |
|-------------------|-------------|---|
| CWARM             | SG1011–3    | CodeWarrior Development Studio for ARM Embedded Systems                 |
| DSP56F800DEMO     | SG1011–14   | 56F800 Demonstration Kit with US Power Supply                           |
| DSP56F800DEMO-E   | SG1011–14   | 56F800 Demonstration Kit with Universal Power Supply                    |
| KITMMEVS08AP      | SG1011–22   | Development System in Support of 68HC908AP64/32/16                      |
| KITMMEVS08LJLK    | SG1011–22   | Development System in Support of 68HC908LJ24                            |
| KITMMDS08AP       | SG1011–23   | Development System in Support of 68HC908AP64/32/16                      |
| 68HC908AP64/32/16 | SG1011–30   | Microcontrollers Hardware Tools: 68HC08 Emulators, Cables, and Adapters |
| 68HC908JB12       | SG1011–31   | Microcontrollers Hardware Tools: 68HC08 Emulators, Cables, and Adapters |
| 68HC08LJ12        | SG1011–31   | Microcontrollers Hardware Tools: 68HC08 Emulators, Cables, and Adapters |
| 68HC908LK24       | SG1011–31   | Microcontrollers Hardware Tools: 68HC08 Emulators, Cables, and Adapters |

## New Section

| Related Product  | Page Number | Section Title   | Description  |
|------------------|-------------|---|--|
| Microcontrollers | SG1011–20   | Innovative On-Chip Debug  | Microcontrollers Development Systems: Innovative On-Chip Debug, MC9S08GB60 Demonstration Board, MC9S08GB60 Evaluation Board, BDM Multilink Universal In-Circuit Debugger/Programmer, Cyclone Pro Universal Standalone In-Circuit Debugger/Programmer |
| Microcontrollers | SG1001–25   | FREE Metrowerks CodeWarrior Development Studio for HC(S)08, Special Edition | Microcontrollers Development Systems: Description and Features provided  |

## 32-BIT EMBEDDED PROCESSORS SOFTWARE TOOLS

### 68K, ColdFire, MPC5xx, PowerPC ISA, and MCORE — Metrowerks

| Product | Description   | Target Support  | RTOS Support   | Board Support   | Host-Target Interface  | Host Platforms        | Language Support                      | Compiler Output Formats          |
|---------|---|---|--|---|--|-----------------------|---------------------------------------|----------------------------------|
| CWARM   | CodeWarrior Development Studio for ARM Embedded Systems               | i.MX1, i.MXL, i.MX1EBSP   | —  | DragonBall i.MX1 (M9328MX1ADS), DragonBall i.MXL (M9328MXLADS), DragonBall i.MX1EBSP (M9328MX1EBSPADS)  | MetroTRK, Run Control Interface JTAG ARM Multi-ICE, Abatron BDI 2000, EPI Majic  | Windows 98/2000/ME/NT | C/C++, Assembly                       | ELF/DWARF2, Motorola S-Record    |
| CW68K   | CodeWarrior Software Development Tools for 68K Embedded Systems       | 68xxx, MC68360, MC68SZ328, MC68VZ328, MC68EZ328                             | PPSM, RTXC, ATI  | DragonBall EZ (M68EZ328ADS), DragonBall VZ (M68VZ328ADS), ADS68360, DragonBall Super VZ (M68SZ328ADS)   | MetroTRK; P&E Microcomputer CPU32 BDM Cable  | Windows 98/2000/ME/NT | C/C++, 68000 Assembly                 | ELF/DWARF, Motorola S-Record     |
| CWCF    | CodeWarrior Software Development Studio for ColdFire Embedded Systems | MCF5206e, MCF5307, MCF5407, MCF5272, MCF5249, MCF5282                       | Precise-MQX, Quadros-RTXC, Blunk-Target OS, KADAK-AMX, Micro Digital-SMX, ATI-Nucleus Plus | M5249C3, M5307C3, M5407C3, M5272C3, M5206eC3, M5282EVb  | P&E Microcomputer ColdFire BDM Cable; Abatron BDI 2000   | Windows 98/2000/NT/XP | C/C++, ColdFire Assembly              | ELF/DWARF, Motorola S-Record     |
| CWEPPC  | CodeWarrior Development Studio, Embedded PowerPC ISA Edition          | MPC555, MPC56x, MPC7xx, MPC74xx, MPC8xx, MPC82xx, PPC603, PPC603ei, MGT5100 | Quadros RTXC, Embedix SDK, Precise MQX, ATI Nucleus  | MPC8260, MPC8266, ADS Board, MPC857DSL IAD Board, MPC866/2/59 ADS, PQ27ADS Board, ADS-P, RPX Lite, RPX Classic, Motorola FADS MBX, Sandpoint, Cognet CMA 102, Axiom 555, Motorola ETAS555, Eximer, AMC Eval | MetroTRK, CodeTAP, PowerTAP, WireTAP Run Control Interface JTAG and BDM (8xx only), Macraigor Systems COP Raven (for MPC82xx and PPC6xx), Macraigor Systems BDM Raven (for MPC8XX, MPC5xx), Abatron BDI 2000 (5xx, 8xx, B2xx, 74xx), P&E Micro CABLEPPC (BDM only) | Windows 98/2000/NT/XP | C/C++, EC++, and PowerPC ISA Assembly | ELF/DWARF, Motorola S-Record     |
| CWMCORE | CodeWarrior Software Development Tools for MCORE                      | M2xx/3xx family processors  | —  | MMC2001, MMC2075/2080, MMC2107, MMC2103, MMC3401, MMC2114   | MetroTRK; Metrowerks EBDI  | Windows 95/98/2000/NT | C/C++, Assembly                       | ELF/DWARF 1.0, Motorola S-Record |

### Other Software

| Company                       | Product Name                  | Product Type  |
|-------------------------------|-------------------------------|---|
| Bytecodes                     | Embedded Bytecode Interpreter | Optimized Java Virtual Machines   |
| Counterpoint Systems Foundry  | IrLite Development Kit        | Infrared communications SDK   |
| Precise Software Technologies | Various                       | Embedded I/O components   |
| Grammar Engine                | PromICE                       | Firmware development  |
| Inverness Systems             | ATIC                          | ATM protocols and applications  |
| Micro APL                     | PortAsm                       | Porting tools that implement the PowerPC architecture <sup>(Note)</sup> |
| Pacific Softworks             | Fusion                        | Internet protocols for Embedded Solutions                               |
| Sun Consumer Electronics      | Internet Software Solution    | Embedded Internet software  |
| Total Impact                  | Total PowerSMPPCI             | Multiprocessing application accelerator                                 |
| US Software                   | USNET                         | Real-time embedded TCP/IP   |
| Wind River Systems            | SystemsWind                   | ViewSystem visualizer for embedded software                             |

Note: Check with tool vendor for specific derivative support.

A change bar appears in the left margin to mark the location of new information. For details, refer to page SG1011-2.

## 32-BIT EMBEDDED PROCESSORS

### 32-BIT EMBEDDED PROCESSORS (continued)

#### HARDWARE TOOLS

##### Metrowerks

| Product        | Description                                      | Target Board | Power Supply | Schematic | Documentation | Interface Board/<br>Wiggler | RTOS Support |
|----------------|--|--------------|--------------|-----------|---------------|-----------------------------|--------------|
| MPC823FADS     | MPC823 FADS Board                                | •            | •            | •         | •             | •                           | •            |
| MPC850SRFADS   | MPC850 FADS Board                                | •            | •            | •         | •             | •                           | •            |
| MPC8260ADS-PQ2 | MPC8260 ADS Board                                | •            | •            | •         | •             | •                           | •            |
| MPC860FADS     | MPC860 FADS Board                                | •            | •            | •         | •             | •                           | •            |
| MPC860TFADS    | MPC860 TFADS Board                               | •            | •            | •         | •             | •                           | •            |
| MPC862ADS      | MPC862 ADS Board                                 | •            |              |           | •             |                             |              |
| MPC862ADS-KITS | MPC862 ADS Board with Debugger and Host Software | •            | •            | •         | •             | •                           | •            |
| MMCEVB1200PV   | MMC2001 Low Cost Evaluation                      | •            | •            | •         | •             |                             |              |
| MMCEVB1200PV-A | MMC2001 Low Cost Evaluation Academic             | •            | •            | •         | •             |                             |              |
| MMCCMB1200     | MMC2001 Development Platform                     | •            | •            | •         | •             |                             |              |
| KITEVSMMC1200  | MMC2001 High Performance System                  | •            | •            | •         | •             | •                           |              |
| MMCEVB2107     | MMC2107 Low Cost Evaluation                      | •            | •            | •         | •             |                             |              |
| MMCEVB2114     | MMC2113/2114 Evaluation Board                    | •            | •            |           | •             |                             | •            |
| MMCCMB2107     | MMC2107 Development Platform                     | •            | •            | •         | •             |                             |              |
| MMCCMB2114     | MMC2113/2115 Development Kit                     | •            | •            |           | •             |                             | •            |
| KITEVSMMC2107  | MMC2107 High Performance Kit                     | •            | •            | •         | •             | •                           |              |
| KITEVSMMC2107  | MMC2107 Complete Development Kit                 | •            | •            | •         | •             |                             |              |
| M5206EC3       | MCF5206e Development Kit                         | •            |              | •         | •             | •                           | •            |
| M5307C3        | MCF5307 Development Kit                          | •            |              | •         | •             | •                           | •            |
| M5407C3        | MCF5407 Development Kit                          | •            |              | •         | •             | •                           | •            |
| M5272C3        | MCF5272 Development Kit                          | •            |              | •         | •             | •                           | •            |
| M5249C3        | MCF5249 Development Kit                          | •            |              | •         | •             | •                           | •            |
| MPC564EVB      | MPC564 Evaluation Board                          | •            | •            | •         | •             | •                           | •            |
| MPC566EVB      | MPC566 Evaluation Board                          | •            | •            | •         | •             | •                           | •            |
| MPC862ADS      | MPC862 ADS Board                                 | •            |              |           | •             |                             |              |
| MPC862ADS-KITS | MPC862 ADS Board with Debugger and Host Software | •            | •            | •         | •             | •                           | •            |
| M5282EVB       | MCF5282 Evaluation Board                         | •            | •            | •         | •             | •                           | •            |

**32-BIT EMBEDDED PROCESSORS (continued)**  
**DEVELOPMENT SYSTEMS**  
**Metrowerks**

| Product                         | Description  | RTOS Support | Debug Interface | Serial Cable | CD ROM | User Manuals | Power Supply | Host Platforms           |
|---------------------------------|--|--------------|-----------------|--------------|--------|--------------|--------------|--------------------------|
| CWDEVSYS5249                    | CodeWarrior Development System for ColdFire MCF5249                    | •            | •               | •            | •      | •            | •            | Windows 95/98/2000/NT    |
| CWDEVSYS5272                    | CodeWarrior Development System for ColdFire MCF5272 <sup>(1)</sup> (2) | •            | •               | •            | •      | •            | •            | Windows 95/98/2000/NT    |
| CWDEVSYS5407                    | CodeWarrior Development System for ColdFire MCF5407 <sup>(1)</sup> (2) | •            | •               | •            | •      | •            | •            | Windows 95/98/2000/NT    |
| CWDEVSYS823FADS <sup>(2)</sup>  | CodeWarrior Development System for MPC823                              | •            | •               |              | •      | •            | •            | Windows 98/2000/ME/NT/XP |
| CWDEVSYS850FADS <sup>(2)</sup>  | CodeWarrior Development System for MPC850                              | •            | •               |              | •      | •            | •            | Windows 98/2000/ME/NT/XP |
| CWDEVSYS860FADS <sup>(2)</sup>  | CodeWarrior Development System for MPC860                              | •            | •               |              | •      | •            | •            | Windows 98/2000/ME/NT/XP |
| CWDEVSYS860TFADS <sup>(2)</sup> | CodeWarrior Development System for MPC860T                             | •            | •               |              | •      | •            | •            | Windows 98/2000/ME/NT/XP |
| CWDEVSYS8260AMC <sup>(2)</sup>  | CodeWarrior Development System for MPC8260                             | •            | •               |              | •      | •            | •            | Windows 98/2000/ME/NT/XP |
| CWCF5282ENDSEVL                 | CodeWarrior Embedded Networks for ColdFire M5282 with RTOS             |              |                 |              |        |              |              | Windows 98/2000/NT/XP    |
| CWDSENA850EVL                   | CodeWarrior Embedded Networks for the MPC850 with Precise/MQX RTOS     | •            | •               | •            | •      | •            | •            | Windows 98/2000/NT/XP    |
| CWDSENA860EVL                   | CodeWarrior Embedded Networks for the MPC860 with Precise/MQX RTOS     | •            | •               | •            | •      | •            | •            | Windows 98/2000/NT/XP    |
| CWDSENA8260EVL                  | CodeWarrior Embedded Networks for the MPC8260 with Precise/MQX RTOS    | •            | •               | •            | •      | •            | •            | Windows 98/2000/NT/XP    |
| CWCF5272ENDSEVL                 | CodeWarrior Embedded Networks for the MCF5282 with RTOS                | •            | •               | •            | •      | •            | •            | Windows 98/2000/NT/XP    |

(1) 12-month support plan available

(2) Contact Metrowerks for more information

## 32-BIT EMBEDDED PROCESSORS

### CABLES AND HOST-TARGET INTERFACES

#### Metrowerks

| Product/Part Number | Description   | Target Support | Connection Device | Power Supply |
|---------------------|---|----------------|-------------------|--------------|
| CWWIRETAPBDM        | AMC's WireTAP Run Control Interface (BDM)                     | •              | •                 | •            |
| CWWIRETAPJTAG       | AMC's WireTAP Run Control Interface (MPC6xx, 7xx, 82xx, 74xx) | •              | •                 | •            |
| CWPOWERTAPJTAG      | PowerTAP Pro for JTAG, Hardware Only                          | •              | •                 | •            |
| CWPTAPPROJCWW       | PowerTAP Pro for JTAG with CodeWarrior for Windows            | •              | •                 | •            |
| CWPTAPPROJMW        | PowerTAP Pro for JTAG with MWX-ICE Windows                    | •              | •                 | •            |
| CWPTAPPROJMS        | PowerTAP Pro for JTAG with MWX-ICE Solaris                    | •              | •                 | •            |
| CWPOWERTAPDPI       | PowerTAP Pro for DPI, Hardware Only                           | •              | •                 | •            |
| CWPTAPPRODCWW       | PowerTAP Pro for DPI, with CodeWarrior for Windows            | •              | •                 | •            |
| CWPTAPPRODMW        | PowerTAP Pro for DPI with MWX-ICE Windows                     | •              | •                 | •            |
| CWPTAPPRODMS        | PowerTAP Pro for DPI with MWX-ICE Solaris                     | •              | •                 | •            |

### 32-BIT EMBEDDED PROCESSORS (continued)

#### THIRD PARTY TOOLS

| Third Party Vendor              | Website                       | Families Supported                                     | Embedded Operating Systems | Compilers and Code Generation Tools | Software Debuggers | Coverification Tools and Simulation Models | Emulators and Diagnostic Tools | Logic Analyzers | Boards and Systems | Support Chips | Drivers / Protocol Stacks |
|---------------------------------|-------------------------------|--|----------------------------|-------------------------------------|--------------------|--|--------------------------------|-----------------|--------------------|---------------|---------------------------|
| Abatron                         | www.abatron.ch                | MCF53xx, MCF52xx, MCF54xx, MPC8xx, MPC82xx, G2, G3, G4 |                            |                                     |                    |  | •                              |                 |                    |               |                           |
| Accelerated Technology          | www.acceleratedtechnology.com | MPC8xx, MPC82xx, G2, G3                                | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| Agilent Technologies            | www.agilent.com               | MPC8xx, MPC82xx, G2, G3, G4                            |                            |                                     |                    |  | •                              | •               |                    |               |                           |
| Aisys                           | www.aisysinc.com              | MPC8xx, MPC82xx, G2                                    |                            | •                                   |                    |  |                                |                 |                    |               | •                         |
| Apogee Software                 | www.apogee.com                | G2, G3, G4   |                            | •                                   |                    |  |                                |                 |                    |               |                           |
| Artis Microsystems              | www.artismicro.com            | G2, G4   |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Blunk Microsystems              | www.blunkmicro.com            | MCF52xx, MPC8xx, MPC82xx, G4                           | •                          |                                     |                    |  |                                |                 |                    |               | •                         |
| CMX Systems                     | www.cmx.com                   | MPC8xx, MPC82xx, G2, G3, G4                            | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| Cogent Computer Systems         | www.cogcomp.com               | MPC82xx, G2, G3  |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Corelis                         | www.corelis.com               | G2, G3, G4   |                            |                                     | •                  |  | •                              |                 |                    |               |                           |
| Data Connection                 | www.dataconnection.com        | MPC8xx, MPC82xx  |                            |                                     |                    |  |                                |                 |                    |               | •                         |
| DY 4 Systems                    | www.dy4.com                   | G2, G3, G4   |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Embedded Planet                 | www.embeddedplanet.com        | MPC8xx, MPC82xx  |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| EmuTec                          | www.emutec.com                | MPC8xx, MPC82xx, G2                                    |                            |                                     |                    |  | •                              |                 |                    |               |                           |
| Express Logic                   | www.expresslogic.com          | MPC8xx, MPC82xx, G2, G3                                | •                          |                                     |                    |  |                                |                 |                    |               |                           |
| Force Computers                 | www.forcecomputers.com        | MPC8xx, MPC82xx, G3, G4                                |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| GDA Technologies                | www.gdatech.com               | MPC8xx, MPC82xx, G4                                    |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Green Hills Software            | www.ghs.com                   | MPC8xx, MPC82xx, G2, G3, G4                            | •                          | •                                   | •                  |  | •                              |                 |                    |               |                           |
| Hughes Network Systems          | www.hns.com                   | MPC8xx   |                            |                                     |                    |  |                                |                 |                    |               | •                         |
| International Test Technologies | www.intertesttech.com         | G2, G3   |                            |                                     |                    |  | •                              |                 |                    |               |                           |
| Jungo                           | www.jungo.com                 | MC8xx  |                            |                                     |                    |  |                                |                 |                    |               | •                         |
| Kadak                           | www.kadak.com                 | MCF52xx, MCF5307, MCF54xx, MPC8xx, MPC82xx, G2, G3, G4 | •                          |                                     | •                  |  |                                |                 |                    |               | •                         |
| Lauterbach                      | www.lauterbach.com            | MPC8xx, MPC82xx, G2, G3                                |                            |                                     | •                  |  | •                              |                 |                    |               |                           |
| Lineo                           | www.lineo.com                 | MPC8xx, MPC82xx, G2, G3, G4                            | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| LinuxWorks                      | www.linuxworks.com            | MPC8xx, MPC82xx, G2, G3, G4                            | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| MAI Logic                       | www.mai.com                   | G2, G3, G4   |                            |                                     |                    |  |                                |                 | •                  | •             |                           |
| Macraigor Systems               | www.macraigor.com             | MPC8xx, MPC82xx, G2, G3, G4                            |                            |                                     | •                  |  | •                              |                 |                    |               |                           |
| Marvell Technology              | www.marvell.com               | G2, G3, G4   |                            |                                     |                    |  |                                |                 | •                  | •             |                           |
| Mentor Graphics                 | www.mentor.com                | MPC8xx, MPC82xx, G2, G3                                | •                          | •                                   | •                  | •  |                                |                 |                    |               |                           |

## 32-BIT EMBEDDED PROCESSORS

### THIRD PARTY TOOLS (continued)

| Third Party Vendor            | Website                  | Families Supported                        | Embedded Operating Systems | Compilers and Code Generation Tools | Software Debuggers | Coverification Tools and Simulation Models | Emulators and Diagnostic Tools | Logic Analyzers | Boards and Systems | Support Chips | Drivers / Protocol Stacks |
|-------------------------------|--------------------------|---|----------------------------|-------------------------------------|--------------------|--|--------------------------------|-----------------|--------------------|---------------|---------------------------|
| MetaWare                      | www.metaware.com         | MPC8xx, MPC82xx, G2, G3, G4               |                            | •                                   | •                  |  |                                |                 |                    |               |                           |
| Metrowerks                    | www.metrowerks.com       | MGTS100, MPC8xx, MPC82xx, G2, G3, G4      | •                          | •                                   | •                  |  | •                              |                 | •                  |               | •                         |
| MicroAPL                      | www.microapl.co.uk       | G2, G3, G4                                |                            | •                                   |                    |  |                                |                 |                    |               |                           |
| Micro Digital                 | www.smxinfo.com          | MCF52xx, MCF54xx, MPC8xx, MPC82xx, G2, G3 | •                          |                                     | •                  |  |                                |                 |                    |               | •                         |
| MicroWare                     | www.microware.com        | MPC8xx, MPC82xx, G2, G3                   | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| MontaVista Software           | www.mvista.com           | MPC8xx, MPC82xx, G2, G3, G4               | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| Motorola Computer Group       | mcg.motorola.com         | G2, G3, G4                                |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Motorola SPS                  | www.motorola.com/powerpc | MPC8xx, MPC82xx, G2, G3, G4               |                            |                                     |                    | •  |                                |                 | •                  | •             |                           |
| MPI Software                  | www.mpi-softtech.com     | G3, G4                                    |                            | •                                   |                    |  |                                |                 |                    |               |                           |
| Netplane                      | www.netplane.com         | MPC8xx                                    |                            |                                     |                    |  |                                |                 |                    |               | •                         |
| OnCore Systems                | www.oncoresystems.com    | MPC82xx, G2, G3                           | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| OSE Systems                   | www.ose.com              | MPC8xx, MPC82xx, G2, G3, G4               | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| Pacific-Sierra Research       | www.psrv.com             | G4  |                            | •                                   |                    |  |                                |                 |                    |               |                           |
| PLX Technology                | www.plxtech.com          | MPC8xx, G2, G3, G4                        |                            |                                     |                    |  |                                |                 | •                  | •             |                           |
| Precise Software Technologies | www.psti.com             | MPC8xx, MPC82xx, G2, G3, G4               | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| PrimeLayer                    | www.primelayer.com       | MPC8xx, MPC82xx                           |                            |                                     |                    |  |                                |                 |                    |               | •                         |
| QNX Software Systems          | www.qnx.com              | MPC8xx, MPC82xx, G2, G3, G4               | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| Radstone Technology           | www.radstone.com         | G2, G3, G4                                |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Red Hat                       | www.redhat.com           | MPC8xx, MPC82xx, G2, G3, G4               | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| Simpod                        | www.simpod.com           | MPC8xx, MPC82xx, G2, G3, G4               |                            |                                     |                    | •  |                                |                 |                    |               |                           |
| Sophia Systems                | www.sophia.com           | MPC8xx, MPC82xx, G2, G3                   |                            |                                     | •                  |  | •                              |                 |                    |               |                           |
| Summit Design                 | www.summit-design.com    | MPC8xx, MPC82xx, G2, G3, G4               |                            |                                     |                    | •  |                                |                 |                    |               |                           |
| Sun                           | www.sun.com/chorusos     | MPC8xx, MPC82xx, G2, G3, G4               | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| Synopsys                      | www.synopsys.com         | MPC8xx, MPC82xx, G2, G3, G4               |                            |                                     |                    | •  |                                |                 |                    |               |                           |
| TASKING                       | www.tasking.com          | MPC8xx, MPC82xx, G2, G3                   |                            | •                                   | •                  |  |                                |                 |                    |               |                           |
| Tektronix                     | www.tektronix.com        | MPC8xx, MPC82xx, G2, G3, G4               |                            |                                     |                    |  |                                | •               |                    |               |                           |
| Tundra Semiconductor          | www.tundra.com           | MPC8xx, MPC82xx, G2, G3, G4               |                            |                                     |                    |  |                                |                 | •                  | •             |                           |
| US Software                   | www.ussw.com             | MPC8xx, MPC82xx                           | •                          |                                     |                    |  |                                |                 |                    |               | •                         |
| Wasabi Systems                | www.wasabisystems.com    | G2, G3, G4                                | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| Wind River Systems            | www.windriver.com        | MPC8xx, MPC82xx, G2, G3, G4               | •                          | •                                   | •                  |  | •                              |                 | •                  |               | •                         |



### 32-BIT EMBEDDED PROCESSORS (continued)

#### THIRD PARTY TOOLS

#### 32-Bit Third Party Tools 68xxx, 683xx, MPC500, MCORE, and ColdFire

| Company                    | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address             |
|----------------------------|-------|-------|--------|-------|----------|-------------------------|
| <b>Assemblers</b>          |       |       |        |       |          |                         |
| Avocet Systems, Inc.       |       | •     |        |       |          | www.avocetsystems.com   |
| Green Hills Software       | •     | •     | •      | •     | •        | www.ghs.com             |
| P&E Microcomputer Systems  |       | •     |        |       | •        | www.pemicro.com         |
| Wind River Systems         | •     | •     | •      | •     | •        | www.wrs.com             |
| Company                    | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address             |
| <b>BDM Support Tools</b>   |       |       |        |       |          |                         |
| Cosmic Software            |       | •     |        |       |          | www.cosmic-software.com |
| Wind River Systems         |       | •     | •      | •     | •        | www.wrs.com             |
| Hitex Development Tools    |       | •     |        |       |          | www.hitex.com           |
| Agilent Technologies, Inc. |       | •     | •      | •     |          | www.agilent.com         |
| iSystem                    |       | •     |        | •     |          | www.isystem.com         |
| Lauterbach                 |       | •     |        | •     | •        | www.lauterbach.com      |
| Macraigor Systems LLC      |       | •     | •      |       |          | www.macraigor.com       |
| P&E Microcomputers Systems |       | •     |        |       | •        | www.pemicro.com         |
| TASKING                    |       | •     |        |       |          | www.tasking.com         |
| Company                    | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address             |
| <b>Code Coverage Tools</b> |       |       |        |       |          |                         |
| Ashling Microsystems       |       |       | •      |       |          | www.ashling.com         |
| Cosmic Software            |       | •     |        |       |          | www.cosmic-software.com |
| Wind River Systems         | •     | •     | •      | •     | •        | www.wrs.com             |
| Green Hills Software       | •     | •     | •      | •     | •        | www.ghs.com             |
| Hitex Development Tools    |       | •     |        |       |          | www.hitex.com           |
| iSystem                    |       | •     | •      |       |          | www.isystem.com         |
| TASKING                    |       | •     |        | •     |          | www.tasking.com         |
| CodeTEST                   |       |       | •      |       | •        | www.metrowerks.com      |

## 32-BIT EMBEDDED PROCESSORS

32-BIT EMBEDDED PROCESSORS (continued)

THIRD PARTY TOOLS (continued)

32-Bit Third Party Tools 68xxx, 683xx, MPC500, MCORE, and ColdFire (continued)

| Company                     | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                   |
|-----------------------------|-------|-------|--------|-------|----------|-------------------------------|
| <b>Compilers</b>            |       |       |        |       |          |                               |
| Accelerated Technology Inc. |       | •     | •      |       | •        | www.acceleratedtechnology.com |
| Byte Craft Limited          |       |       |        | •     |          | www.bytecraft.com             |
| TASKING                     |       | •     |        | •     |          | www.tasking.com               |
| Cosmic Software             |       | •     |        |       |          | www.cosmic-software.com       |
| Wind River Systems          | •     | •     | •      | •     | •        | www.wrs.com                   |
| Green Hills Software        | •     | •     | •      | •     | •        | www.ghs.com                   |
| P&E Microcomputers Systems  |       | •     |        |       | •        | www.pemicro.com               |
| GNU                         | •     |       |        |       | •        | www.gnu.org                   |
| Metrowerks                  |       | •     | •      | •     | •        | www.metrowerks.com            |
| Company                     | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                   |

### Debuggers

| Ashling Microsystems        |       | •     | •      |       |          | www.ashling.com               |
|-----------------------------|-------|-------|--------|-------|----------|-------------------------------|
| Accelerated Technology Inc. |       | •     | •      | •     | •        | www.acceleratedtechnology.com |
| Wind River Systems          | •     | •     | •      | •     | •        | www.wrs.com                   |
| Green Hills Software        | •     | •     | •      | •     | •        | www.ghs.com                   |
| iSystem                     |       | •     | •      | •     |          | www.isystem.com               |
| Lauterbach                  | •     | •     | •      | •     | •        | www.lauterbach.com            |
| P&E Microcomputers Systems  |       | •     |        |       | •        | www.pemicro.com               |
| Metrowerks                  |       | •     | •      | •     | •        | www.metrowerks.com            |
| Company                     | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                   |

### Evaluation Boards

|                     |  |   |   |   |   |                    |
|---------------------|--|---|---|---|---|--------------------|
| Axiom Manufacturing |  |   | • | • |   | www.axman.com      |
| Arrow               |  | • | • | • | • | www.arrow.com      |
| Avnet               |  | • | • | • | • | www.avnet.com      |
| Future              |  | • | • | • | • | www.future.com     |
| Matrix Design Inc.  |  |   |   |   | • | www.cadreiii.com   |
| Metrowerks          |  | • | • | • | • | www.metrowerks.com |

### 32-Bit Third Party Tools 68xxx, 683xx, MPC500, MCORE, and ColdFire (continued)

| Company   | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                             |
|---|-------|-------|--------|-------|----------|---|
| <b>Logic Analyzers</b>                                  |       |       |        |       |          |   |
| Agilent Technologies, Inc.                              |       | •     | •      | •     |          | www.agilent.com                         |
| iSystem   |       | •     |        |       |          | www.isystem.com                         |
| Tektronix   |       | •     | •      | •     |          | www.tek.com/measurement/logic_analyzers |
| Company   | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                             |
| <b>In-Circuit Emulators or Hardware Debug Interface</b> |       |       |        |       |          |   |
| Ashling Microsystems                                    |       | •     | •      |       |          | www.ashling.com                         |
| Wind River Systems                                      |       | •     | •      |       | •        | www.wrs.com                             |
| Hitex Development Tools                                 |       | •     |        |       |          | www.hitex.com                           |
| iSystem   |       | •     | •      |       |          | www.isystem.com                         |
| Lauterbach  |       | •     | •      |       | •        | www.lauterbach.com                      |
| Microtek International Inc.                             |       | •     |        |       | •        | www.microtek.com.tw/mice                |
| Company   | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                             |
| <b>Performance Analysis Tools</b>                       |       |       |        |       |          |   |
| Wind River Systems                                      | •     | •     | •      | •     | •        | www.wrs.com                             |
| Green Hills Software                                    | •     | •     | •      | •     | •        | www.ghs.com                             |
| iSystem   |       | •     | •      |       |          | www.isystem.com                         |

## 32-BIT EMBEDDED PROCESSORS

### 32-Bit Third Party Tools 68xxx, 683xx, MPC500, MCORE, and ColdFire (continued)

| Company                            | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address  |
|------------------------------------|-------|-------|--------|-------|----------|--|
| <b>Real-Time Operating Systems</b> |       |       |        |       |          |  |
| Accelerated Technology Inc.        | •     | •     | •      | •     | •        | <a href="http://www.atinucleus.com">www.atinucleus.com</a> |
| Quadros Systems                    |       | •     | •      | •     | •        | <a href="http://www.metrowerks.com">www.metrowerks.com</a> |
| ETAS                               |       | •     | •      |       |          | <a href="http://www.etasinc.com">www.etasinc.com</a>       |
| Green Hills Software               | •     | •     | •      | •     | •        | <a href="http://www.ghs.com">www.ghs.com</a>               |
| ARC International                  | •     | •     | •      | •     | •        | <a href="http://www.metrowerks.com">www.metrowerks.com</a> |
| Snap Gear                          |       |       |        |       | •        | <a href="http://www.snapgear.com">www.snapgear.com</a>     |
| TASKING                            |       | •     |        |       |          | <a href="http://www.tasking.com">www.tasking.com</a>       |
| U S Software                       |       | •     | •      |       | •        | <a href="http://www.ussw.com">www.ussw.com</a>             |
| Wind River Systems                 | •     |       |        |       | •        | <a href="http://www.wrs.com">www.wrs.com</a>               |
| Blunk Microsystems                 | •     | •     | •      | •     | •        | <a href="http://www.blunkmicro.com">www.blunkmicro.com</a> |
| Kadak                              | •     | •     | •      |       | •        | <a href="http://www.kadak.com">www.kadak.com</a>           |
| Micro Digital                      |       |       | •      |       | •        | <a href="http://www.smxinfo.com">www.smxinfo.com</a>       |

| Company                 | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address  |
|-------------------------|-------|-------|--------|-------|----------|--|
| <b>Simulation Tools</b> |       |       |        |       |          |  |
| Wind River Systems      | •     | •     |        | •     | •        | <a href="http://www.wrs.com">www.wrs.com</a>         |
| Green Hills Software    | •     | •     | •      | •     | •        | <a href="http://www.ghs.com">www.ghs.com</a>         |
| TASKING                 |       | •     |        | •     |          | <a href="http://www.tasking.com">www.tasking.com</a> |

ANALOG  
DEVELOPMENT SYSTEMS  
Development Tools — Communications Application-Specific Standard Products

| Product       | Description  | Key Product  | Status    | Documentation   |
|---------------|--|--|-----------|-----------------|
| MC14LC5480EVK | PCM Codec-Filter Evaluation Kit                            | MC14LC5480, MC145481, MC145482, MC145483, MC145484 | Available | MC14LC5480EVK/D |
| MC145572EVK   | ISDN U-Interface Transceiver Evaluation Kit                | MC145572   | Available | Note            |
| MC145574EVK   | ISDN S/T-Interface Transceiver Evaluation Kit              | MC145574   | Available | Note            |
| MC145576EVK   | ISDN Single-Chip NT1 Evaluation Kit                        | MC145576   | Available | Note            |
| MC145576DRV   | Driving Board for the MC145576EVK for Smart NT1 Evaluation | MC145576   | Available | Note            |
| Hipster™      | Hipster Reference Design for SOHO Router                   | MC145572, MC145574, MPC850DH                       | Available | Note            |

Note: For documentation, go to [www.motorola.com/semiconductors](http://www.motorola.com/semiconductors), and click on the Tools Library link.

## DIGITAL SIGNAL PROCESSORS

## DSP56800/DSP56800E Development Tools - Software

| Product       | Description  | Status    |
|---------------|--|-----------|
| MSW3SDK000AA  | Embedded software development kit (SDK) for DSP56800/56800E. Software infrastructure that allows development of efficient, high level software applications that are fully portable and reusable not only across all DSP56800/DSP56800E family processors, but any future SDK supported architectures as well. | Available |
| CWDSPEC       | CodeWarrior Analysis Tools for DSP56800E   | Available |
| CWDSP56800    | CodeWarrior Software Development Tools for DSP56800 (Metrowerks)   | Available |
| CWDSP56800E   | CodeWarrior Software Development Tools for DSP56800E (Metrowerks)  | Available |
| CWSTARCOREWIN | CodeWarrior Software Development Tools for StarCore (Windows) (Metrowerks)   | Available |
| CWSTARCORESOL | CodeWarrior Software Development Tools for StarCore (Solaris) (Metrowerks)   | Available |
| PP-JTAG       | JTAG controller with Printer Port Interface and software supporting production Flash programming   | Available |
| DSPOSRTOS     | DSP OS Real-Time Operating System (RTOS)   | Available |
| DSPOSNET      | DSP OS Network Software  | Available |
| RTXC          | RTXC Real-Time Operating System (RTOS)   | Available |
| RTXCNET       | RTXC Networking Protocol Suite   | Available |
| DSP56852SFP   | DSP56852 with Feature Phone Application  | Available |
| DSP56858SFP   | DSP56858 with Feature Phone Application  | Available |

## DSP56800 Development Tools - Hardware

| Product         | Description   | Status   |
|-----------------|---|--|
| DSP56800TDC1    | Daughter Card for DSP56F826EVM and DSP56F827EVM                                 | Available  |
| DSP56F800DEMO   | 56F800 Demonstration Kit with US power supply                                   | Available  |
| DSP56800DEMO-E  | 56F800 Demonstration Kit with universal power supply                            | Available  |
| DSP56F801EVM    | Evaluation kit for the DSP56F801 and DSP56F802 processor (Metrowerks)           | Available  |
| DSP56F803EVM    | Evaluation kit for the DSP56F803 processor (Metrowerks)                         | Available  |
| DSP56F805EVM    | Evaluation kit for the DSP56F805 processor (Metrowerks)                         | Available  |
| DSP56F807EVM    | Evaluation kit for the DSP56F807 processor (Metrowerks)                         | Available  |
| DSP56F826EVM    | Evaluation kit for the DSP56F826 processor (Metrowerks)                         | Available  |
| DSP56F827EVM    | Evaluation kit for the DSP56F827 processor (Metrowerks)                         | Available  |
| DSPCOMMPARALLEL | Emulation support for DSP56F80X processors. Requires parallel port (Metrowerks) | Available  |
| DSPCOMMANDPCI   | Emulation support for DSP56F80X processors. Requires PCI slot (Metrowerks)      | Consult Web or Metrowerks for availability of CodeWarrior software support |
| DSPCOMMETHERNET | Emulation support for DSP56F80X processors. Requires Ethernet network           | Consult Web or Metrowerks for availability of CodeWarrior software support |

A change bar appears in the left margin to mark the location of new information. For details, refer to page SG1011-2.

### *DSP56800 Development Tools - Hardware (continued)*

| Product        | Description  | Status    |
|----------------|--|-----------|
| DSPOSRTOS      | DSP OS Real-Time Operating System (RTOS)             | Available |
| ECINLHIVSR     | 3-Phase Switched Reluctance High-Voltage Power Stage | Available |
| ECLOVACBLDC    | 3-Phase BLDC Low-Voltage Power Stage                 | Available |
| ECLOVSR        | 3-Phase Switched Reluctance Low-Voltage Power Stage  | Available |
| ECMTREVAL      | Evaluation Motor Board                               | Available |
| ECOPT          | Optoisolation Board                                  | Available |
| ECOPTINL       | In-Line Optoisolation Box                            | Available |
| ECCTR908MR32   | MC68HC908MR32 Control Board                          | Available |
| ECOPTHIVACBLDC | 3-Phase AC BLDC High-Voltage Power Stage             | Available |

### *DSP56800E Development Tools - Hardware*

| Product         | Description  | Status    |
|-----------------|--|-----------|
| DSP56852EVM     | Evaluation Kit for DSP56852 Processor                            | Available |
| DSPCOMMPARALLEL | Parallel Port Command Converter for DSP                          | Available |
| DSPCOMMETHERNET | Ethernet Command Converter for DSP                               | Available |
| DSPCOMMANDPCI   | PCI Command Converter for DSP                                    | Available |
| DSPCOMMAND      | Universal Command Converter for DSP                              | Available |
| DSP56858EVM     | Evaluation Kit for DSP56858 Embedded Systems                     | Available |
| DSP56800TDC1    | Daughter Card for DSP56852EVM and DSP56858EVM                    | Available |
| HTIONCEJTAG     | CodeWarrior HTI for OnCE/JTAG Communication (supports DSP56800E) | Available |

### *DSP56300 Family and MSC8100 Family Development Systems*

| Product      | Description   | Status    |
|--------------|---|-----------|
| DSPTOOLSCD   | DSP56300 Family Simulator/Assembler/Librarian for IBM PC, SUN-4, and Hewlett-Packard Series 700. DSPTOOLSCD is only available as a download from Metrowerks at <a href="http://www.metrowerks.com/embedded/suite56">www.metrowerks.com/embedded/suite56</a> . | Available |
| CDDSP56300/D | DSP56300 Training CD  | Available |
| DSP56301ADM  | DSP56301 Applications Development Module  | Available |
| DSP56303EVM  | DSP56303 Evaluation Module  | Available |
| DSP56L307EVM | DSP56L307 Evaluation Module   | Available |
| DSP56309EVM  | DSP56309 Evaluation Module  | Available |
| DSP56311EVM  | DSP56311 Evaluation Module  | Available |
| DSP56321EVM  | DSP56321 Evaluation Module  | Available |

*DSP56300 Family and MSC8100 Family Development Systems (continued)*

| Product          | Description   | Status             |
|------------------|---|--------------------|
| DSPAUDIOEVMMB1   | DSP5636x Evaluation Module (Daughter Card listed separately)  | Available          |
| DSPB56362DB1     | DSPB56362DB1 Evaluation Module Daughter Card  | Available          |
| DSPF56362DB1     | DSPF56362DB1 Dolby and DTS Licensing Required   | Available          |
| DSPB56364DB1     | DSPB56364DB1 Evaluation Module Daughter Card  | Available          |
| DSPB56366DB1     | DSPB56366DB1 Evaluation Module Daughter Card  | Available          |
| DSPD56366DB1     | DSPD56366DB1 Dolby and DTS Licensing Required   | Available          |
| DSPB56367DB1     | DSPB56367DB1 Evaluation Module Daughter Card  | Available          |
| DSPA56367DB1     | DSPA56367DB1 Dolby and DTS Licensing Required   | Available          |
| DSPC56367DB1     | DSPC56367DB1 Dolby and DTS Licensing Required   | Available          |
| MSC8101ADS       | MSC8101 Application Development System Board (Metrowerks)   | Available          |
| DSPCOMMAND       | 16-, 24-, 32-bit Command Converter Board, which allows the host to talk with DSP target system via OnCE/JTAG port. Either a DSPPCHOST or DSPSUN4HOST is required with the DSPCOMMAND. | Available          |
| DSPPCHOST        | PC-Compatible Host Interface Board  | Available          |
| DSPSUN4HOST      | Sun-4 Host Interface Board  | Available          |
| DSPCOMMANDPCI    | Command Converter with PCI Host Interface   | Available          |
| DSPCOMMETHERNET  | Command Converter with Ethernet Host Interface  | Available          |
| DSPCOMMPARALLEL  | Command Converter with Parallel Port Host Interface   | Available          |
| HTIONCEJTAG      | Panther HTI for OnCE/JTAG Communication. CodeWarrior for StarCore Windows/Solaris   | Available          |
| CWDSSTAR8101-WIN | MSC8101 Application Development System for Windows (Metrowerks)   | Available          |
| CWDSSTARWIN      | Development System with Panther for Windows (Metrowerks)  | Available          |
| CWSTARCOREWIN    | Metrowerks CodeWarrior Software Development Tools for StarCore v.1.1 (Windows) (Metrowerks)   | Available          |
| CWSTARCORESOL    | Metrowerks CodeWarrior Software Development Tools for StarCore v.1.1 (Solaris) (Metrowerks)   | Available          |
| CWDSSTAR8101-SOL | MSC8101 Application Development System for Solaris  | Available          |
| CWDSSTARSOL      | Development System with Panther for Solaris   | Available          |
| CWMSC8101ADSEVAL | CodeWarrior Development System for MSC8101ADS   | Evaluation Edition |
| CWMSC8101EVMEVAL | CodeWarrior Development System for MSC8101EVM   | Evaluation Edition |



## DIGITAL SIGNAL PROCESSORS (continued)

### DSP56300 and MSC8100 Development Tools - Software

| Tools Description                         | Partner  | Contact  |
|---|--|--|
| Real-Time Operating System                | Eonic Systems<br>Embedded Power Corporation<br>Quadros Systems, Inc.<br>OSE Systems<br>Precise Software Technologies<br>Wind River Systems | <a href="http://www.eonics.com">www.eonics.com</a><br><a href="http://www.embeddedpower.com">www.embeddedpower.com</a><br><a href="http://www.quadros.com">www.quadros.com</a><br><a href="http://www.ose.com">www.ose.com</a><br><a href="http://www.psti.com">www.psti.com</a><br><a href="http://www.windriver.com">www.windriver.com</a>               |
| Integrated Development Environment        | Green Hills Software<br>Metrowerks<br>Signalogic<br>TASKING  | <a href="http://www.greenhills.com">www.greenhills.com</a><br><a href="http://www.metrowerks.com">www.metrowerks.com</a><br><a href="http://www.signalogic.com">www.signalogic.com</a><br><a href="http://www.tasking.com">www.tasking.com</a>   |
| Optimizing Compilers / Assembler / Linker | Green Hills Software<br>Metrowerks<br>TASKING<br>Wind River Systems  | <a href="http://www.greenhills.com">www.greenhills.com</a><br><a href="http://www.metrowerks.com">www.metrowerks.com</a><br><a href="http://www.tasking.com">www.tasking.com</a><br><a href="http://www.windriver.com">www.windriver.com</a>   |
| Debugger                                  | Domain Technologies<br>Green Hills Software<br>Metrowerks<br>Precise Software Technologies<br>TASKING<br>Wind River Systems                | <a href="http://www.domaintec.com">www.domaintec.com</a><br><a href="http://www.greenhills.com">www.greenhills.com</a><br><a href="http://www.metrowerks.com">www.metrowerks.com</a><br><a href="http://www.psti.com">www.psti.com</a><br><a href="http://www.tasking.com">www.tasking.com</a><br><a href="http://www.windriver.com">www.windriver.com</a> |
| Simulator                                 | Metrowerks<br>Precise Software Technologies<br>TASKING<br>Wind River Systems   | <a href="http://www.metrowerks.com">www.metrowerks.com</a><br><a href="http://www.psti.com">www.psti.com</a><br><a href="http://www.tasking.com">www.tasking.com</a><br><a href="http://www.windriver.com">www.windriver.com</a>   |
| DSP Algorithm Development                 | Mathworks<br>Hyperception  | <a href="http://www.mathworks.com">www.mathworks.com</a><br><a href="http://www.hyperception.com">www.hyperception.com</a>   |
| System Simulation and Verification        | Cadence<br>Mentor Graphics<br>Synopsys   | <a href="http://www.cadence.com/alta">www.cadence.com/alta</a><br><a href="http://www.mentorgraphics.com">www.mentorgraphics.com</a><br><a href="http://www.synopsys.com">www.synopsys.com</a>   |
| Hardware Debug Connections / Analyzers    | Corelis/HP<br>Macraigor Systems<br>Metrowerks<br>Signalogic<br>Wind River Systems  | <a href="http://www.corelis.com">www.corelis.com</a><br><a href="http://www.macraigor.com">www.macraigor.com</a><br><a href="http://www.metrowerks.com">www.metrowerks.com</a><br><a href="http://www.signalogic.com">www.signalogic.com</a><br><a href="http://www.windriver.com">www.windriver.com</a>   |
| Hardware Development Tools                | CDA Systems<br>P&E Microcomputer Systems<br>United Electronic Industries<br>White Electronic Designs                                       | <a href="http://www.cdasy.com">www.cdasy.com</a><br><a href="http://www.pemicro.com">www.pemicro.com</a><br><a href="http://www.ueidaq.com">www.ueidaq.com</a><br><a href="http://www.whiteedc.com">www.whiteedc.com</a>   |
| Device Driver Software                    | Aisys<br>Motorola I/O Driver Library for MSC8101   | <a href="http://www.aisysinc.com">www.aisysinc.com</a><br><a href="http://www.motorola.com/DSP">www.motorola.com/DSP</a>   |

## MICROCONTROLLERS

### MICROCONTROLLERS

### SOFTWARE TOOLS

### HC05, HC08, HC11, HC12, HC16, MPC5xx, 568xx, and MCORE — Metrowerks

| Product   | Description                                      | Target Support   | RTOS Support              | Board Support                                    | Host-Target Interface                | Host Platforms              | Language Support            |
|-----------|--|--|---------------------------|--|--------------------------------------|-----------------------------|-----------------------------|
| CWHC05ASM | CW ASM Tools for HC05                            | HC05 family processors (B, BD, C, F, J, JB, JJ, JP, K, KJ, L, LJ, P, PV, SR, SU and X families)              | —                         | MMEVS, MMDS                                      | —                                    | Windows 95/98/2000/ME/NT4.0 | Assembly, C/C++, cC++, EC++ |
| CWHC05    | CW Full Package for HC05                         | HC08 family processors (AB, AS, AZ, EY, GP, GR, GT, JB, JK, JL, JG, QT, QY, KX, LJ, MR, RF, RK, SR families) | —                         | MMEVS, MMDS                                      | —                                    | Windows 95/98/2000/ME/NT4.0 | Assembly, C/C++, cC++, EC++ |
| CWHC11ASM | CW ASM Tools for HC11                            | HC11 family processors (D, E, F, FC, K, KS, KW and P families)   | —                         | —  | Monitor                              | Windows 95/98/2000/ME/NT4.0 | Assembly, C/C++, cC++, EC++ |
| CWHC11    | CW Full Package for HC11                         | HC11 family processors (D, E, F, FC, K, KS, KW and P families)   | —                         | —  | Monitor                              | Windows 95/98/2000/ME/NT4.0 | Assembly, C/C++, cC++, EC++ |
| CWHC11MIG | CW Full Package for HC11 Migration               | HC11 family processors (D, E, F, FC, K, KS, KW and P families)   | Metrowerks OSEKturbo OS H | —  | Monitor                              | Windows 95/98/2000/ME/NT4.0 | Assembly, C/C++, cC++, EC++ |
| CWHC16ASM | CW ASM Tools for HC16                            | HC16 family processors (R, X, Y, and Z families)   | —                         | —  | P&E ICD, Abatron BDI, Lauterbach BDM | Windows 95/98/2000/ME/NT4.0 | Assembly, C/C++, cC++, EC++ |
| CWHC16    | CW Full Package for HC16                         | HC16 family processors (R, X, Y, and Z families)   | —                         | —  | P&E ICD, Abatron BDI, Lauterbach BDM | Windows 95/98/2000/ME/NT4.0 | Assembly, C/C++, cC++, EC++ |
| CWHC16MIG | CW Full Package for HC16 Migration               | HC16 family processors (R, X, Y, and Z families)   | —                         | —  | P&E ICD, Abatron BDI, Lauterbach BDM | Windows 95/98/2000/ME/NT4.0 | Assembly, C/C++, cC++, EC++ |
| CWMCORE   | CodeWarrior Software Development Tools for MCORE | M2xx/3xx family processors   | —                         | MMC2001, MMC2075/2080, MMC2107, MMC2103, MMC3401 | MetroTRK; Metrowerks EBDI            | —                           | —                           |

## *MICROCONTROLLERS (continued)*

### *DEVELOPMENT SYSTEMS*

#### *MON08 CYCLONE*

The MON08 Cyclone provides all the capabilities of the MON08 Multilink plus the ability to function as a stand-alone programmer with push buttons and LEDs to control operation.

##### **Cyclone Hardware**

- Fast in-circuit stand-alone programming
  - Simple push button and LED user interface
- Host-based programming with scripting capability to execute a series of commands
  - Automated programming of test routines, test execution, erase, and final software programming
- Real-time in-circuit emulation and debug
- Auto-detects baud rate and frequency
- Provides optional overdrive clock to target
- Supports 2 V to 5.5 V 68HC08s
- Automatically cycles power for security checks (up to 500 mA)
- Universal power supply
- Includes CodeWarrior Development Studio for HC08, Special Edition

The order number for this product is M68CYCLONE08 (M68CYCLONE-EUR in Europe).

#### *68HC908QT4 DEMONSTRATION BOARD*

The 68HC908QT4 demonstration kit contains everything a designer needs to develop and evaluate applications for the Q Family of M68HC08 Microcontrollers.

##### **Features**

- Evaluation board with a 4K FLASH 68HC908QT4 8-pin MCU
- Tutorial and demonstration code including A/D, timer, PWM, and keyboard interrupt routines to help you learn the 68HC908QT Family quickly
- Free Special Edition Code Warrior Development Suite for HC08, allowing you to:
  - Modify demo code or develop new code for the 68HC908QT4 in assembly or C
  - Program and debug code through DB9 serial port and included RS232 serial cable

The order number for this product is M68DEM0908QT4.

#### *MON08 MULTILINK*

The MON08 Multilink is an easy to use low-cost development tool for Motorola's 68HC08 FLASH MCUs. The MON08 Multilink provides in-circuit emulation, debugging, and programming through the 68HC08's standard MON08 serial debug/breakpoint interface.

Some of the features that help make the MON08 Multilink such a versatile, time-saving tool are:

Universal development tool for all MON08 68HC08s

- Real-time in-circuit emulation and debug
- Fast in-circuit programming
- Auto-detects baud rate and frequency
- Provides optional overdrive clock to target
- Small unobtrusive size (approximately 3" x 2" x 3/4")
- Supports 2 V to 5.5 V 68HC08s
- Automatically cycles power for security checks (up to 125 mA)
- Universal power supply
- Includes CodeWarrior Development Studio for HC08, Special Edition

Complete with sample of 68HC908GP32 FLASH MCU and comprehensive documentation

The order number for this product is M68MULTILINK08 (M68MULTILINK08-E in Europe).

### MICROCONTROLLERS (continued)

### DEVELOPMENT SYSTEMS (continued)

#### INNOVATIVE ON-CHIP DEBUG

The HCS08's innovative on-chip debug module allows expensive emulators to be replaced with low-cost serial real-time emulation and debug!

- Unique on-chip trigger and buffer hardware avoids the expense of traditional bus analyzers
  - Nine flexible trigger modes with three hardware breakpoints
  - Change of flow address or event data buffer
- Real-time emulation of all MCU functions at HCS08's full operating voltage and frequency range with no limitations – unlike traditional emulators
- Non-intrusive debugging through a single, dedicated background debug mode (BDM) pin eliminates the need and cost of cumbersome emulator cables
- View and change internal registers and memory while running an application
- Single step, run, or trace application code

#### MC9S08GB60 DEMONSTRATION BOARD

The GB60 demonstration kit contains everything a designer needs to develop and evaluate MC9S08GB or GT Family applications.

- Evaluation board with a 60K Flash MC9S08GB60 MCU, dual DB9 RS232 serial ports, switches, LEDs, potentiometer, MCU pin-breakout header, and small prototype area
- Powered by 2 AA batteries (included) or optional external power supply
- Learn the HCS08 MCU Family quickly with demonstration code including A/D, timer, PWM, and keyboard interrupt routines
- Modify demo code or develop new code for the GB60 in assembly or C using free CodeWarrior Development Suite for HC(S)08, Special Edition
- Program and debug code using free CodeWarrior Development Studio for HC08, Special Edition through DB9 serial port and included RS232 serial cable or optional BDM Multilink

The order number for this product is M68DEMO908GB60.

#### MC9S08GB60 EVALUATION BOARD

The GB60 evaluation kit contains everything a designer needs to develop and evaluate MC9S08GB or GT Family applications.

- Evaluation board with a 60K flash MC9S08GB60 MCU, LCD display, dual DB9 RS232 serial ports, switches, LEDs, and a breadboard area
- Modify demo code or develop new code for the GB60 in assembly or C using free CodeWarrior Development Suite for HC(S)08, Special Edition
- Program and debug code using free CodeWarrior Development Studio for HC08, Special Edition through DB9 serial port and included RS232 serial cable or optional BDM Multilink
- Universal power supply

The order number for this product is M68EVB908GB60.

#### BDM MULTILINK UNIVERSAL IN-CIRCUIT DEBUGGER/PROGRAMMER

The BDM Multilink is an easy-to-use, low-cost universal development tool for all HCS08 MCUs.

- Real-time in-circuit debug through HCS08s BDM interface
- Fast in-circuit flash programming
- Small unobtrusive size (approximately 3" x 2" x 3/4")
- Supports 1.8 V to 5.5 V HC(S)08s
- Includes CodeWarrior Development Studio for HC08, Special Edition

The order number for this product is M68MULTILINKS08.

#### CYCLONE PRO UNIVERSAL STANDALONE IN-CIRCUIT DEBUGGER/PROGRAMMER

The Cyclone Pro provides all the capabilities of the BDM Multilink plus USB/Ethernet interfaces, the ability to function as a standalone programmer with pushbuttons and LEDs to control operation, and support for all MON08 HC08s and BDM HCS08s and HCS12s.

- Supports all HC(S)08s and HC(S)12s
- Ethernet, USB, and Serial interfaces
- Fast in-circuit flash programming
- Scripting capability automates programming of test routines, test execution, erase, and final SW programming
- Auto-detects baud rate and frequency of target MCU
- Provides optional overdrive clock to target MCU
- Automatically cycles power for security checks (up to 500 mA)
- Supports 1.8 V to 5.5 V

The order number for this product is M68CYLCONEPRO.

A change bar appears in the left margin to mark the location of new information. For details, refer to page SG1011-2.

## MICROCONTROLLERS (continued)

### DEVELOPMENT SYSTEMS (continued)

#### In-Circuit Simulator (ICS) Kits

##### Economical, Integrated Developing and Debugging

Motorola's in-circuit simulator kits are low-cost tools for developing and debugging target systems incorporating Motorola's most popular 68HC05 and 68HC08 MCUs. They provide an innovative interface to a user's target system for Windows-based editing, assembly, software simulation, programming, and in-circuit simulation. In-circuit simulation allows you to use the actual inputs and outputs of your target system during simulation of your code.

##### Features:

- Windows-based integrated development environment (IDE) with editor, assembler, debugger, and simulator:
  - Run under Windows 3.x<sup>®</sup>/Windows 98<sup>®</sup>
  - Examine and modify memory, registers, and I/O
  - Up to 64 instruction and register (accumulator, stack, index) break points
  - Several single-stepping and run modes of execution
  - Trace buffer holds previously executed instructions and variables
  - Data variable display window
  - Simulates all I/O, interrupts, timers, and other on-chip hardware
  - Detects attempted use of uninitialized or unimplemented locations
  - Data logging and script commands for recording and automatic execution of a sequence of commands
  - On-screen context-sensitive Windows help
- In-circuit simulation:
  - Emulation cable for connection to target system
  - Non-realtime in-circuit emulation
- Program EPROM, OTP, EEPROM, and FLASH microcontrollers

##### Kit Contents:

- Windowed EPROM or FLASH MCU sample
- Comprehensive documentation:
  - MCU technical data books
  - Software and hardware user's manual
  - Application guide/text book
  - MCU technical documentation CD-ROM
- Serial cable for PC to ICS connection
- Wall-mount power supply

##### Added Capabilities of the 68HC08 ICS Kits:

- Real-time in-circuit emulation available except for clock control and communication
- Real-time in-circuit debug using the 68HC08's MON08 serial debug/breakpoint capability
- Includes CodeWarrior Development Studio for HC08, Special Edition

| In Support of              | Motorola Part Number |
|----------------------------|----------------------|
| 68HC705B16                 | M68ICS05B            |
| 68HC705C8A/C9A             | M68ICS05C            |
| 68HC705JP7/JJ7             | M68ICS05JP           |
| 68HC705KJ1/J1A             | M68ICS05KJ           |
| 68HC705P6A                 | M68ICS05P            |
| 68HC908AB32                | M68ICS08AB           |
| 68HC908AZ60A/AS60A         | M68ICS08ASAZ         |
| 68HC908GP32                | M68ICS08GPGT         |
| 68HC908GR4/GR8             | M68ICS08GR           |
| 68HC908JB16/JG16           | M68ICS08JB.JG        |
| 68HC908JB8                 | M68ICS08JB           |
| 68HC908JL3/JK3/JK1/JK8/JL8 | M68ICS08JLJK         |
| 68HC908KX8/KX2             | M68ICS08KX           |
| 68HC908LJ12                | M68ICS08LJ           |
| 68HC908MR8/MR16/MR32       | M68ICS08MR           |
| 68HC908RK2                 | M68ICS08RK2          |
| 68HC908SR12                | M68ICS08SR           |
| 68HC908GT8/16              | M68ICS08GPGT         |

## MICROCONTROLLERS

### MICROCONTROLLERS (continued)

### DEVELOPMENT SYSTEMS (continued)

#### Modular Evaluation System (MMEVS) Kits

The Motorola modular evaluation system (MMEVS) is Motorola's economical, two-board emulator for the 68HC(7)05 and 68HC(9)08 Families of microcontrollers. The MMEVS consists of a platform board and an emulator module (EM). Connected to your target system, the emulator replicates the actual target system MCU. An integrated development environment (IDE) allows for quick edits and changes to assembly code, which makes design, debug, and real-time evaluation of the target system as efficient as possible. Use this economical system to perform traditional debugging activities such as executing code in run or step mode, setting break points, monitoring or modifying CPU registers, memory and application variables, and creating log or script files to record test results or create test suites.

#### Features:

- Real-time, non-intrusive, in-circuit emulation at the MCUs operating frequency
- 64 hardware break points
- Control of code execution in run or step mode
- 64K bytes of fast emulation memory (SRAM)
- Current-limited target input/output connections
- 6 software-selectable oscillator clock sources
- Command and response logging to save session history and/or to generate script files
- SCRIPT command for automatic execution of a sequence of commands (such as system configuration setup and automated test runs)
- Assembly source-level debugging
- Host/emulator communication speeds as high as 57,600 baud
- Extensive on-line MCU information via the CHIPINFO command
- Includes CodeWarrior Development Studio for HC08, Special Edition

#### Kit Contents:

- MMEVS platform board (M68MMPFB0508):
  - IDE (including editor, assembler, debugger)
  - 9-lead RS-232 serial cable
  - 9- to 25-pin serial cable adapter
  - MMEVS user's manuals
  - Power supply
- Device-specific emulation module
- Device- and package-specific target cables/adapters
- In-circuit simulation and programming kit (ICS)

| In Support of                  | Motorola Part Number |
|--------------------------------|----------------------|
| 68HC705B16                     | KITMMEVS05B          |
| 68HC705C8A/C9A                 | KITMMEVS05C          |
| 68HC705JP7/JJ7                 | KITMMEVS05JP         |
| 68HC705KJ1/J1A                 | KITMMEVS05KJ         |
| 68HC705P6A                     | KITMMEVS05P6A        |
| 68HC908AB32                    | KITMMEVS08AB32       |
| 68HC908AP64/32/16              | KITMMEVS08AP         |
| 68HC908AZ60A/AS60A             | KITMMEVS08ASAZ       |
| 68HC908EY16                    | KITMMEVS08EY         |
| 68HC908GP32                    | KITMMEVS08GPGT       |
| 68HC908GR4/GR8                 | KITMMEVS08GR         |
| 68HC908GR16/GZ16/GZ8           | KITMMEVS08GZ16       |
| 68HC908JB12/JB16/JG16          | KITMMEVS08JB16       |
| 68HC908JB8                     | KITMMEVS08JB8        |
| 68HC908JL3/JK3/JK1/JK8/JL8     | KITMMEVS08JL         |
| 68HC908KX8/KX2                 | KITMMEVS08KX         |
| 68HC908LJ12                    | KITMMEVS08LJ         |
| 68HC908LJ24                    | KITMMEVS08LJLK       |
| 68HC908MR16/MR32               | KITMMEVS08MR32       |
| 68HC908QT1/QT2/QT4/QY1/QY2/QY4 | KITMMEVS08QTQY       |
| 68HC908SR12                    | KITMMEVS08SR12       |
| 68HC908GT8/16                  | KITMMEVS08GPGT       |

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MICROCONTROLLERS (continued)  
DEVELOPMENT SYSTEMS (continued)  
Modular Development System (MMDS) Kits

The Motorola modular development system (MMDS) is a full-featured emulator system for developing embedded systems using 68HC(7)05 and 68HC(9)08 microcontrollers. In addition to incorporating the debug features of the Motorola modular evaluation system (MMEVS), the MMDS adds advanced features such as real-time, dual-ported memory and a bus state analyzer to capture user-defined bus cycles or events. Use the dual-ported memory to tune filter circuits or monitor changes to program variables while your program is running at full speed. Verify nested or complex program flows using the bus state analyzer's full range of sequenced or logical event triggering and data capture modes. These added features help users develop, debug, and deliver 68HC05 or 68HC08 products in less time.

Features:

- Real-time, non-intrusive, in-circuit emulation at the operating frequency of the target device
- Control of code execution in run or step mode
- Real-time bus state analyzer:
  - 8K x 64 real-time trace buffer
  - Display of real-time trace data
  - Four hardware triggers
  - Nine triggering modes
  - up to 8190 pre- or post-trigger points for trace data
  - 16 general-purpose logic chips
  - 16-bit time tag, or optional 24-bit time tag
- 4 complex break points (any combination of address, data, control, and/or I/O)
- 64 instruction break points
- 32 real-time variables
- 32 bytes of real-time memory
- 64K bytes of fast emulation memory (SRAM)
- Current-limited target input/output connections
- 6 software-selectable oscillator clock sources
- Command and response logging to save session history and/or to generate script files
- SCRIPT command for automatic execution of a sequence of commands (such as system configuration setup and automated test runs)
- Host/emulator communications speeds as high as 57,600 baud
- Extensive on-line device information via CHIPINFO command
- Includes CodeWarrior Development Studio for HC08, Special Edition

Contents:

- MMDS Station module with built-in power supply (M68MMDS0508):
    - 39 cm deep x 25.9 cm wide x 7 cm high
    - Two logic clip cable assemblies
    - 9-lead RS-232 serial cable
    - 9- to 25-pin serial cable adapter
    - IDE with editor, assembler, and debugger
  - Device-specific emulation module
  - Device- and package-specific target cables/adapters
- In-circuit simulation and programming kit (ICS)

| In Support of                  | Motorola Part Number |
|--------------------------------|----------------------|
| 68HC705B16                     | KITMMDS05B           |
| 68HC705C8A/C9A                 | KITMMDS05C           |
| 68HC705JP7/JJ7                 | KITMMDS05JP          |
| 68HC705KJ1/J1A                 | KITMMDS05KJ          |
| 68HC705P6A                     | KITMMDS05P6A         |
| 68HC908AB32                    | KITMMDS08AB32        |
| 68HC908AP64/32/16              | KITMMDS08AP          |
| 68HC908AZ60A/AS60A             | KITMMDS08ASAZ        |
| 68HC908EY16                    | KITMMDS08EY          |
| 68HC908GP32                    | KITMMDS08GPGT        |
| 68HC908GR4/GR8                 | KITMMDS08GR          |
| 68HC908GR16/GZ16/GZ8           | KITMMDS08GZ16        |
| 68HC908JB12/JB16/JG16          | KITMMDS08JB1G        |
| 68HC908JB8                     | KITMMDS08JB8         |
| 68HC908JL3/JK3/JK1/JK8/JL8     | KITMMDS08JL          |
| 68HC908KX8/KX2                 | KITMMDS08KX          |
| 68HC908LJ12                    | KITMMDS08LJ          |
| 68HC908MR16/MR32               | KITMMDS08MR32        |
| 68HC908QT1/QT2/QT4/QY1/QY2/QY4 | KITMMDS08QTQY        |
| 68HC908SR12                    | KITMMDS08SR12        |
| 68HC908GT8/16                  | KITMMDS08GPGT        |

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### MICROCONTROLLERS (continued)

### DEVELOPMENT SYSTEMS (continued)

#### CodeWarrior Development Studio for HC08, Special Edition

This comprehensive special edition toolset combines the best from Motorola, Metrowerks, and leading third-party developers and is bound to establish a new standard with the included components for fast and easy MCU development.

##### Features:

- Industry-leading CodeWarrior Integrated Development Environment
  - Project manager for up to 32 files
  - Built-in “stationary” templates with example assembly and C code to help create new projects faster
- Full-chip simulation and Flash programming with P&E Microcomputer Systems technology
- Assembler, linker, and assembly source level debugger supports all 68HC08 MCUs
- Highly optimized ANSI C compiler and C source level debugger for many of Motorola’s most popular 68HC08 MCUs
  - Fully supports the 68HC908JL3, JK3, JK1, KX2, GR4, RK2, RF2, QT4, QT2, QT1, QY4, QY2, QY1, and future derivatives with less than 4 kB of memory
  - Over 60 optimization strategies specifically designed to boost performance and reduce code size
- Processor Expert™ rapid application design tool from UNIS
  - Provides optimized and tested automatic C code generation for most 68HC08 on-chip peripherals to dramatically reduce development time and improve code quality
  - Helps to eliminate time spent on low-level details, which allows more time for adding value to system solution
  - Promotes reusability and easy system configuration
  - Verifies design based on actual MCU resources and timing contentions to help catch potential problems before you begin debugging
- Fully supports Motorola’s 68HC08 hardware development tools
  - MMDS, MMEVS, ICS, Cyclone, and MON08 Multilink

The special edition software is available on CD-ROM and for download from [www.motorola.com/mcu](http://www.motorola.com/mcu)

##### C Compiler

The special edition is a full-featured toolset with a 4K code size limited version of our highly optimized C compiler. You can upgrade to a 32K version or an unlimited 64K version to support all HC(S)08s. Both upgrades have project management for greater than 32 files.

The order number is CWHC08C32UPG (32K version)  
CWHC08C64UPG (64K version)

##### Standard Edition

The standard edition includes an unrestricted C compiler, project management for greater than 32 files, unlimited data visualization tools to ease debugging, and access to an additional 170-plus software-only objects for the Processor Expert design tool.

The order number for this product is CWHC08STD.

##### Professional Edition

The professional edition provides the following additional advanced tools to speed your design to market:

- Code coverage analysis allows the user to isolate unused or badly used portions of code
- Profiler/performance analysis to identify and optimize critical portions of code
- Software trace/logic analyzer, combined with breakpoints, to quickly isolate complex problems
- Additional advanced objects for the Processor Expert design tool, including support for complex communication modules such as CAN
- Processor Expert Wizard that allows design of custom beans
- OSEK awareness
- I-Logix Rhapsody in MicroC interface

The order number for this product is CWHC08PRO.



*MICROCONTROLLERS (continued)*  
*DEVELOPMENT SYSTEMS (continued)*

**FREE Metrowerks CodeWarrior Development Studio for HC(S)08,  
Special Edition**

This comprehensive special edition toolset combines the best from Motorola, Metrowerks, and leading third-party developers, and is bound to establish a new standard with the included components for fast and easy MCU development.

**Features:**

- Industry-leading CodeWarrior Integrated Development Environment
  - Project manager for up to 32 files
  - Built-in "stationary" templates with example assembly and C code to help create new projects faster
- Full-chip simulation and Flash programming
  - Start software development immediately using simulator without waiting for target hardware or requiring an evaluation board
- Assembler, linker, and assembly source level debugger supports all HC(S)08 MCUs
- Highly optimized ANSI C compiler and C source level debugger supports any HC(S)08 with less than 4K bytes of memory
- Over 60 optimization strategies specifically designed to boost performance and reduce code size
- Upgrades to 32K and 64K code sizes are available to support any HC(S)08
- Processor Expert™ rapid application design tool from UNIS
  - Provides optimized and tested automatic C code generation for most HC(S)08 on-chip peripherals to dramatically reduce development time and improve code quality
  - Helps to eliminate time spent on low-level details, which allows more time for adding value to system solution
  - Promotes reusability and easy system configuration
  - Verifies design based on actual MCU resources and timing contentions to help catch potential problems before you begin debugging
- Takes full advantage of innovative on-chip HCS08 debug module
- Supports BDM Multilink and ROM monitor debugging
- Additional upgrades are available to speed development
  - Compiler upgrade to 32K-byte or 64K-byte memories
  - Standard Edition includes advanced data visualization software that allows developers to see real-time feedback of simulation utilizing graphic representation such as displays and gauges while stimulating I/O with graphic representations such as a potentiometer
  - Professional Edition includes additional advanced tools such as code coverage, performance analysis, and Processor Expert custom bean-generating Wizard

The order number for this product is CDCWHC08SE/D.

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### MICROCONTROLLERS (continued)

### DEVELOPMENT SYSTEMS (continued)

#### CodeWarrior Development Studio for HCS12, Special Edition

This comprehensive special edition toolset combines the best from Motorola, Metrowerks, and leading third-party developers and is bound to establish a new standard with the included components for fast and easy MCU development.

##### Features:

- Industry-leading CodeWarrior Integrated Development Environment
  - Project manager for up to 32 files
- Built-in “stationary” templates with example assembly and C code to help create new projects faster
- CPU and timer simulation
- Flash programming
- Assembler, linker, and assembly source level debugger supports all HCS12 MCUs
- Highly optimized ANSI C compiler and C source level debugger for up to 12K-bytes code size
  - Over 60 optimization strategies specifically designed to boost performance and reduce code size
  - Upgrades to support larger memory HCS12s available
- Processor Expert™ rapid application design tool from UNIS
  - Provides optimized and tested automatic C code generation for most HCS12 on-chip peripherals to dramatically reduce development time and improve code quality
  - Helps to eliminate time spent on low-level details, which allows more time for adding value to system solution
  - Promotes reusability and easy system configuration
  - Verifies design based on the actual MCU resources and timing contentions to help catch potential problems before you begin debugging
- Fully supports Motorola’s HCS12 hardware development tools
  - Cyclone Pro and BDM Multilink

The special edition software is available on CD-ROM and for download from [www.motorola.com/mcu](http://www.motorola.com/mcu)

The order number for this product is CDCWSEHC12/D.

##### C Compiler

The special edition is a full-featured toolset with a 12K-byte code size limited version of our highly optimized C compiler. Upgrade to a 32K-byte version, a 64K-byte version, or an unrestricted version to support any HCS12. All upgrades have project management for greater than 32 files.

The order number is CWHC12C32UPG (32K version)  
CWHC12C64UPG (64K version)

##### Standard Edition

The standard edition includes an unrestricted C compiler, project management for greater than 32 files, unlimited data visualization tools to ease debugging, and access to an additional 170-plus software-only objects for the Processor Expert design tool.

The order number for this product is CWHC12STD.

##### Professional Edition

The professional edition provides the following additional advanced tools to speed your design to market:

- Code coverage analysis allows the user to isolate unused or badly used portions of code
- Profiler/performance analysis to identify and optimize critical portions of code
- Software trace/logic analyzer, combined with breakpoints to quickly isolate complex problems
- Additional advanced objects for the Processor Expert design tool, including support for complex communication modules such as CAN
- Processor Expert Wizard that allows design of custom beans
- OSEK awareness
- I-Logix Rhapsody in MicroC interface

The order number for this product is CWHC12PRO.

## MICROCONTROLLERS (continued)

### HARDWARE TOOLS

#### 68HC05 Emulators, Cables, and Adapters

| Product                                | Platform                       | Emulation Modules | Packages Supported   | Flex Cable                                       | Target Head Adapter  | Surface Mount Adapter   |
|--|--------------------------------|-------------------|--|--|--|---|
| 68HC05B6/B8/B16/B32<br>68HC705B16N/B32 | M68MMPFB0508<br>or M68MMDS0508 | M68EM05B32        | 56-pin SDIP (B)<br>64-pin QFP (FU)<br>52-pin PLCC (FN)                   | M68CBL05B<br>M68CBL05C<br>M68CBL05C              | M68TB05B32B56<br>M68TC05B32FU64<br>M68TC05B32FN52                | M68TQP064SA1 <sup>(1)</sup><br>M68TQS064SAG1 <sup>(1)</sup>                   |
| 68HC05BD3/BD5/BD7<br>68HC705BD3/BD7    | M68MMPFB0508<br>or M68MMDS0508 | M68EM05BD7        | 40-pin DIP (P)<br>42-pin SDIP (B)  | M68CBL05B<br>M68CBL05B                           | M68TB05BD7P40<br>M68TB05BD7B42                                   |   |
| 68HC05BD9/BD16/BD24<br>68HC705BD9/BD24 | M68MMPFB0508<br>or M68MMDS0508 | X68EM05BD9        | 40-pin DIP (P)<br>42-pin SDIP (B)  | M68CBL05B<br>M68CBL05B                           | M68TB05BD9P40<br>M68TB05BD9B42                                   |   |
| 68HC05C4A/C8A/C12A<br>68HC705C8A       | M68MMPFB0508<br>or M68MMDS0508 | M68EM05C9A        | 40-pin DIP (P)<br>44-pin PLCC (FN)<br>44-pin QFP (FB)<br>42-pin SDIP (B) | M68CBL05B<br>M68CBL05C<br>M68CBL05C<br>M68CBL05B | M68TB05C9P40<br>M68TC05C4FN44<br>M68TC05C9FB44<br>M68TB05C9B42   | M68TQS044SAG1 <sup>(1)</sup><br>M68TQP044SAMO1 <sup>(1)</sup>                 |
| 68HC05C9A<br>68HC705C9A                | M68MMPFB0508<br>or M68MMDS0508 | M68EM05C9A        | 40-pin DIP (P)<br>44-pin PLCC (FN)<br>42-pin SDIP (B)<br>44-pin QFP (FB) | M68CBL05B<br>M68CBL05C<br>M68CBL05B<br>M68CBL05C | M68TB05C9P40<br>M68TC05C9FN44<br>M68TB05C9B42<br>M68TC05C9FB44   | M68TQS044SAG1 <sup>(1)</sup><br>M68TQP044SAMO1 <sup>(1)</sup>                 |
| 68HC05E6<br>68HC705E6                  | M68MMPFB0508<br>or M68MMDS0508 | M68EM05E6         | 28-pin SOIC (DW)<br>44-pin QFP (FB)                                      | M68CBL05C<br>M68CBL05C                           | M68TC05E6P28<br>M68TC05E6FB44                                    | M68DIP28SOIC<br>M68TQS044SAG1 <sup>(1)</sup><br>M68TQP044SAMO1 <sup>(1)</sup> |
| 68HC705F32                             | M68MMPFB0508<br>or M68MMDS0508 | M68EM05F32        | 100-pin TQFP (PU)<br>80-pin TQFP (PU)                                    | M68CBL05E<br>M68CBL05E                           | M68TE05F32PU100<br>M68TE05F32PU80                                |   |
| 68HC05H12<br>68HC705H12                | M68MMPFB0508<br>or M68MMDS0508 | X68EM05H12        | 52-pin PLCC (FN)   | M68CBL05C  | X68TC05H12FN52   |   |
| 68HC05J5A<br>68HC05LJ5<br>68HC705J5A   | M68MMPFB0508<br>or M68MMDS0508 | X68EML05J5A       | 16-pin DIP (P)<br>20-pin DIP (P)<br>16-pin SOIC (DW)<br>20-pin SOIC (DW) | M68CBL05A<br>M68CBL05A<br>M68CBL05A<br>M68CBL05A | M68TA05J5AP16<br>M68TA05J5AP20<br>M68TA05J5AP16<br>M68TA05J5AP20 | M68DIP16SOIC<br>M68DIP20SOIC  |

1. Each QFP target head adapter includes one TQSOCKET with guides (M68TQxxxSyG1) and one TQPACK disposable surface mount adapter (M68TQxxxSy1 – 1.2-mm lead length or M68TQxxxSyM01 – 1.6-mm lead length). Order additional TQPACKs and TQSOCKETs (optional) using part numbers referenced in the Surface Mount Adapters column to support multiple target systems.

## MICROCONTROLLERS

MICROCONTROLLERS (continued)

HARDWARE TOOLS (continued)

68HC05 Emulators, Cables, and Adapters (continued)

| Product                         | Platform                       | Emulation Modules | Packages Supported   | Flex Cable                                       | Target Head Adapter  | Surface Mount Adapter   |
|---------------------------------|--------------------------------|-------------------|--|--|--|---|
| 68HC705JB3                      | M68MMPFB0508<br>or M68MMDS0508 | X68EM05JB3        | 20-pin DIP (P)<br>28-pin DIP (P)<br>28-pin SOIC (DW)                     | M68CBL05A<br>M68CBL05A<br>M68CBL05A              | M68TA05JB3P20<br>M68TA05JB3P28<br>M68TA05JB3P28                  | M68DIP28SOIC  |
| 68HC705JB4                      | M68MMPFB0508<br>or M68MMDS0508 | X68EM05JB4        | 28-pin DIP (P)<br>28-pin SOIC (DW)                                       | M68CBL05A<br>M68CBL05A                           | M68TA05JB4P28<br>M68TA05JB4P28                                   | M68DIP28SOIC  |
| 68HC705JJ7<br>68HC05JJ6         | M68MMPFB0508<br>or M68MMDS0508 | X68EM05JP7        | 20-pin DIP (P)<br>20-pin SOIC (DW)                                       | M68CBL05A<br>M68CBL05A                           | X68TA05JJ7P20<br>X68TA05JJ7P20                                   | M68DIP20SOIC  |
| 68HC705JP7<br>68HC05JP6         | M68MMPFB0508<br>or M68MMDS0508 | X68EM05JP7        | 28-pin DIP (P)<br>28-pin SOIC (DW)                                       | M68CBL05A<br>M68CBL05A                           | X68TA05JP7P28<br>X68TA05JP7P28                                   | M68DIP28SOIC  |
| 68HC05J1A<br>68HC705J1A         | M68MMPFB0508<br>or M68MMDS0508 | M68EM05J1A        | 20-pin DIP (P)<br>20-pin SOIC (DW)                                       | M68CBL05A<br>M68CBL05A                           | M68TA05J2P20<br>M68TA05J2P20                                     | M68DIP20SOIC  |
| 68HC705KJ1                      | M68MMPFB0508<br>or M68MMDS0508 | M68EM05J1A        | 16-pin DIP (P)<br>16-pin SOIC (DW)                                       | M68CBL05A<br>M68CBL05A                           | M68TA05KJ1P16<br>M68TA05KJ1P16                                   | M68DIP16SOIC  |
| 68HC05L5/L16<br>68HC705L16      | M68MMPFB0508<br>or M68MMDS0508 | M68EML05L16       | 80-pin QFP (FU)  | M68CBL05E  | M68TE05L16FU80   | M68TQS080SBG1 <sup>(1)</sup><br>M68TQP080SBM01 <sup>(1)</sup> |
| 68HC05L25<br>68HC705L26         | M68MMPFB0508<br>or M68MMDS0508 | M68EML05L26       | 52-pin LQFP (PB)   | M68CBL05C  | M68TC05L26PB52   |   |
| 68HC05P1A/P4A/P9A<br>68HC705P6A | M68MMPFB0508<br>or M68MMDS0508 | X68EML05P6A       | 28-pin DIP (P)<br>28-pin SOIC (DW)                                       | M68CBL05A<br>M68CBL05A                           | M68TA05P9P28<br>M68TA05P9P28                                     | M68DIP28SOIC  |
| 68HC05P18<br>68HC805P18         | M68MMPFB0508<br>or M68MMDS0508 | X68EM05P18        | 28-pin DIP (P)<br>28-pin SOIC (DW)                                       | M68CBL05A<br>M68CBL05A                           | M68TA05P9P28<br>M68TA05P9P28                                     | M68DIP28SOIC  |
| 68HC05PL4<br>68HC705PL4         | M68MMPFB0508<br>or M68MMDS0508 | X68EML05PL4       | 20-pin DIP (P)<br>28-pin DIP (P)<br>20-pin SOIC (DW)<br>28-pin SOIC (DW) | M68CBL05A<br>M68CBL05A<br>M68CBL05A<br>M68CBL05A | M68TA05PL4P20<br>M68TA05PL4P28<br>M68TA05PL4P20<br>M68TA05PL4P28 | M68DIP20SOIC<br>M68DIP28SOIC                                  |
| 68HC805PV8                      | M68MMPFB0508<br>or M68MMDS0508 | X68EM05PV8        | 28-pin SOIC (DW)   | M68CBL05A  | X68TA05PV8P28  | M68DIP28SOIC  |

1. Each QFP target head adapter includes one TQSOCKET with guides (M68TQSxxxSyG1) and one TQPACK disposable surface mount adapter (M68TQPxxxSy1 – 1.2-mm lead length or M68TQPxxxSyM01 – 1.6-mm lead length). Order additional TQPACKs and TQSOCKETs (optional) using part numbers referenced in the Surface Mount Adapters column to support multiple target systems.

## MICROCONTROLLERS (continued)

## HARDWARE TOOLS (continued)

### 68HC05 Emulators, Cables, and Adapters (continued)

| Product                        | Platform                       | Emulation Modules | Packages Supported                                   | Flex Cable                          | Target Head Adapter                              | Surface Mount Adapter   |
|--------------------------------|--------------------------------|-------------------|--|-------------------------------------|--|---|
| 68HC05RC18<br>68HC705RC16/RC17 | M68MMPFB0508<br>or M68MMDS0508 | X68EM05RC16       | 28-pin DIP (P)<br>28-pin SOIC (DW)                   | M68CBL05A<br>M68CBL05A              | X68TA05RC16P28<br>X68TA05RC16P28                 | M68DIP28SOIC  |
| 68HC05SR3/SU3A<br>68HC705SR3   | M68MMPFB0508<br>or M68MMDS0508 | M68EM05SR3        | 40-pin DIP (P)<br>44-pin QFP (FB)<br>42-pin SDIP (B) | M68CBL05B<br>M68CBL05C<br>M68CBL05B | M68TB05SR3P40<br>M68TC05SR3FB44<br>M68TB05SR3B42 | M68TQS044SAG1 <sup>(1)</sup><br>M68TQP044SAMO1 <sup>(1)</sup> |
| 68HC05X4<br>68HC705X4          | M68MMPFB0508<br>or M68MMDS0508 | M68EM05X4         | 28-pin DIP (P)<br>28-pin SOIC (DW)                   | M68CBL05A<br>M68CBL05A              | M68TA05X4P28<br>M68TA05X4P28                     | M68DIP28SOIC  |
| 68HC05X16/X32<br>68HC705X32    | M68MMPFB0508<br>or M68MMDS0508 | M68EML05X32       | 64-pin QFP (FU)                                      | M68CBL05E                           | M68TE05X32FU64                                   | M68TQS064SAG1 <sup>(1)</sup><br>M68TQP064SA1 <sup>(1)</sup>   |

1. Each QFP target head adapter includes one TQSOCKET with guides (M68TQxxxSyG1) and one TQPACK disposable surface mount adapter (M68TQxxxSy1 – 1.2-mm lead length or M68TQxxxSyMO1 – 1.6-mm lead length). Order additional TQPACKs and TQSOCKETs (optional) using part numbers referenced in the Surface Mount Adapters column to support multiple target systems.

## MICROCONTROLLERS

MICROCONTROLLERS (continued)

HARDWARE TOOLS (continued)

68HC08 Emulators, Cables, and Adapters

| Product  | Platform                       | Emulation Modules | Packages Supported                                       | Flex Cable                          | Target Head Adapter                                  | Surface Mount Adapter   |
|--|--------------------------------|-------------------|--|-------------------------------------|--|---|
| 68HC908AB32<br>68HC08AB16A   | M68MMPFB0508<br>or M68MMDS0508 | M68EML08AB32      | 64-pin QFP (FU)  | M68CBL05C                           | M68TC08AB32FU64                                      | M68TQS064SAG1 <sup>(2)</sup><br>M68TQP064SA1 <sup>(2)</sup>   |
| 68HC908AP64/32/16  | M68MMPFB0508 or<br>M68MMDS0508 | M68EML08AP64      | 42-pin SDIP (B)<br>44-pin QFP (FB)<br>48-pin QFP (FA)    | M68CBL05C                           | M68TB08AP64B42<br>M68TB08AP64FB44<br>M68TB08AP64FA48 | M68TQS044SAG1<br>M68TQSP048SD1                                |
| 68HC08AS20/32/60<br>68HC08AZ32/60<br>68HC908AS32/60A<br>68HC908AZ60A<br>68HC908AZ32A | M68MMPFB0508<br>or M68MMDS0508 | M68EM08AS/AZ60A   | 52-pin PLCC (FN)<br>64-pin QFP (FU)                      | M68CBL05C<br>M68CBL05C              | X68TC08AX48FN52<br>X68TC08AX48FU64                   | M68TQS064SAG1 <sup>(2)</sup><br>M68TQP064SA1 <sup>(2)</sup>   |
| 68HC908BD48  | M68MMPFB0508<br>or M68MMDS0508 | M68EM08BD48       | 42-pin SDIP (B)<br>44-pin QFP (FB)<br><br>28-pin DIP (P) | M68CBL05B<br>M68CBL05C<br>M68CBL05B | M68TB08BD48B42<br>M68TC08BD48FB44<br>M68TB08BD48P28  | M68TQS044SAG1 <sup>(2)</sup><br>M68TQP044SAMO1 <sup>(2)</sup> |
| 68HC908EY16  | M68MMPFB0508<br>or M68MMDS0508 | M68EML08EY        | 32-pin QFP (FA)  | M68CBL05C                           | M68TC08EYFA32  | M68TQP032SA1  |
| 68HC908GP32<br>68HC08GP32<br>68HC908GT16<br>68HC908GT8                               | M68MMPFB0508<br>or M68MMDS0508 | M68EML08GPGT      | 40-pin DIP (P)<br>42-pin SDIP (B)<br>44-pin QFP (FB)     | M68CBL05B<br>M68CBL05B<br>M68CBL05C | M68TB08GP32P40<br>M68TB08GP32B42<br>M68TC08GP32FB44  | M68TQS044SAG1 <sup>(2)</sup><br>M68TQP044SAMO1 <sup>(2)</sup> |
| 68HC908GR8<br>68HC908GR4   | M68MMPFB0508<br>or M68MMDS0508 | M68EML08GPGT      | 28-pin DIP (P)<br>32-pin QFP (FA)                        | M68CBL05C<br>M68CBL05C              | M68TC08GR8P28<br>M68TC08GR8FA32                      | M68TQS032SAG1 <sup>(2)</sup><br>M68TQP032SA1 <sup>(2)</sup>   |
| 68HC908GR16<br>68HC908GZ16   | M68MMPFB0508<br>or M68MMDS0508 | M68EML08GZ16      | 32-pin QFP (FJ)<br>48-pin QFP (FA)                       | M68CBL05C<br>M68CBL05C              | M68TC08GZFJ32<br>M68TC08GZFA48                       | M68TQP032SA1<br>M68TQP048SD1                                  |

1. New development tool product to be introduced.

2. Each QFP target head adapter includes one TQSOCKET with guides (M68TQxxxSyG1) and one TQPACK disposable surface mount adapter (M68TQPxxxSy1 – 1.2-mm lead length or M68TQPxxxSyMO1 – 1.6-mm lead length). Order additional TQPACKs and TQSOCKETs (optional) using part numbers referenced in the Surface Mount Adapters column to support multiple target systems.

A change bar appears in the left margin to mark the location of new information. For details, refer to page SG1011-2.

## 68HC08 Emulators, Cables, and Adapters (continued)

| Product  | Platform   | Emulation Modules                | Packages Supported   | Flex Cable  | Target Head Adapter  | Surface Mount Adapter   |
|--|--|----------------------------------|--|---|--|---|
| 68HC908JB8   | M68MMPFB0508<br>or M68MMDS0508                                       | M68EM08JB8                       | 20-pin DIP (P)<br>20-pin SOIC (DW)<br>28-pin SOIC (DW)<br>42-pin SDIP (B)<br>44-pin QFP (FB) | M68CBL05C<br>M68CBL05C<br>M68CBL05C<br>M68CBL05B<br>M68CBL05C | M68TC08JB8P20<br>M68TC08JB8P20<br>M68TC08JB8P28<br>M68TB08JB8B42<br>M68TC08JB8FB44 | M68DIP20SOIC<br>M68DIP28SOIC<br><br>M68TQS044SAG1 <sup>(2)</sup><br>M68TQP044SAM01 <sup>(2)</sup> |
| 68HC908JB12<br>68HC908JB16<br>68HC908JG16  | M68MMPFB0508<br>or M68MMDS0508<br><br>M68MMPFB0508<br>or M68MMDS0508 | M68EML08JB1G<br><br>M68EML08JB1G | 32-pin LQFP (FA)<br>28-pin SOIC (DW)<br>32-pin LQFP (FA)                                     | M68CBL05C<br><br>M68CBL05C                                    | M68TC08JB16FA32<br>M68TC08JB16P28<br>M68TC08JG16FA32                               | M68DIP28SOIC  |
| 68HC908JK1<br>68HC908JK3<br>68HC908JK8   | M68MMPFB0508<br>or M68MMDS0508                                       | M68EML08JLJK                     | 20-pin DIP (P)<br>20-pin SOIC (DW)   | M68CBL05C   | M68TC08JK3P20<br>M68TC08JK3P20   | M68DIP20SOIC  |
| 68HC908JL3<br>68HC08JL3<br>68HC908JL8  | M68MMPFB0508<br>or M68MMDS0508                                       | M68EML08JLJK                     | 28-pin DIP (P)<br>28-pin SOIC (DW)<br>32-pin QFP (FA)  | M68CBL05C   | M68TC08JL3P28<br>M68TC08JL3P28<br>M68TC08JL8FA32                                   | M68DIP28SOIC  |
| 68HC908KX8<br>68HC908KX2   | M68MMPFB0508<br>or M68MMDS0508                                       | M68EML08KX                       | 20-pin SOIC (DW)<br>16-pin SOIC (DW)   | M68CBL05C   | M68TA08KX6P16  | M68DIP16SOIC  |
| 68HC908LD64  | M68MMPFB0805<br>or M68MMDS0508                                       | X68EML08LD64                     | 64-pin QFP (FU)  | M68CBL05C   | M68TC08LD64FU64  | M68TQS064SAG1 <sup>(2)</sup><br>M68TQP064SA1 <sup>(2)</sup>                                       |
| 68HC08LJ12<br>68HC908LK24  | M68MMPFB0508 or<br>M68MMDS0508                                       | M68EML08EY                       | 52-pin QFP (PB)<br>64-pin QFP (FU)<br>80-pin QFP (FA)  | M68CBL05C   | M68TE08LJLKFB52<br>M68TE08LJLKFU64<br>M68TE08LJLKFAQ80                             | M68TQS064SAG1   |
| 68HC908LJ12  | M68MMPFB0805<br>or M68MMDS0508                                       | M68EML08LJ12                     | 64-pin QFP (FU)<br>64-pin LQFP (PB)<br>52-pin QFP (FB)                                       | M68CBL05C   | M68TC08LJ12FU64<br>M68TC08LJ12PB64<br>M68TC08LJ12FB52                              | M68TQS064SAG1 <sup>(2)</sup><br>M68TQP064SA1 <sup>(2)</sup>                                       |
| 68HC908MR8<br>68HC08MR4  | M68MMPFB0805<br>or M68MMDS0508                                       | M68EM08MR8 <sup>(1)</sup>        | 32-pin QFP (FA)  | M68CBL05C   | MC68TC08MR8FA32  | M68TQS032SAG1 <sup>(2)</sup><br>M68TQP032SA1 <sup>(2)</sup>                                       |
| 68HC908MR32<br>68HC908MR24<br>68HC908MR16  | M68MMPFB0508<br>or M68MMDS0508                                       | M68EM08MR32                      | 64-pin QFP (FU)<br><br>56-pin SDIP (B)   | M68CBL05C<br><br>M68CBL05C                                    | M68TC08MR24FU64<br><br>M68TC08MR24B56  | M68TQS064SAG1 <sup>(2)</sup><br>M68TQP064SAM01 <sup>(2)</sup>                                     |
| 68HC908QT1<br>68HC908QT2<br>68HC908QT4<br>68HC908QY1<br>68HC908QY2<br>68HC908QY4 | M68MMPFB0508<br>or M68MMDS0508                                       | M68EML08QTQY                     | 8-pin DIP (P)<br>8-pin SOIC (DW)<br>16-pin DIP (P)<br>16-pin SOIC (DW)<br>16-pin TSSOP (DT)  | M68CBL05A   | M68TA08QTP8<br>M68TA08QTP8<br>M68TA08QYP16<br>M68TA08QYP16<br>M68TA08QYT16         | M68DIP8SOIC<br><br>M68DIP16SOIC<br>M68DIP16TSSOP  |

1. New development tool product to be introduced.

2. Each QFP target head adapter includes one TQSOCKET with guides (M68TQxxxSyG1) and one TQPACK disposable surface mount adapter (M68TQxxxSy1 – 1.2-mm lead length or M68TQxxxSyM01 – 1.6-mm lead length). Order additional TQPACKs and TQSOCKETs (optional) using part numbers referenced in the Surface Mount Adapters column to support multiple target systems.

A change bar appears in the left margin to mark the location of new information. For details, refer to page SG1011-2.

## MICROCONTROLLERS

### 68HC08 Emulators, Cables, and Adapters (continued)

| Product     | Platform                       | Emulation Modules          | Packages Supported | Flex Cable | Target Head Adapter          | Surface Mount Adapter   |
|-------------|--------------------------------|----------------------------|--------------------|------------|------------------------------|---|
| 68HC908RK2  | M68MMPFB0508<br>or M68MMDS0508 | M68EML08RK2 <sup>(1)</sup> | 20-pin DIP (P)     | M68CBL05A  | M68TA05RK2P20 <sup>(1)</sup> | M68DIP20SOIC<br><br>M68TQS032SAG1 <sup>(2)</sup><br>M68TQP032SA1 <sup>(2)</sup> |
|             |                                |                            | 20-pin SOIC (DW)   | M68CBL05A  | M68TA05RK2P20 <sup>(1)</sup> |   |
|             |                                |                            | 32-pin QFP (FA)    | M68CBL05A  | M68TA05RK2FA32               |   |
| 68HC908SR12 | M68MMPFB0508<br>or M68MMDS0508 | M68EML08SR12               | 42-pin SDIP (B)    | M68CBL05B  | M68TB08SR12B42               | M68TQS048SDG1 <sup>(2)</sup><br>M68TQP048SD1 <sup>(2)</sup>                     |
|             |                                |                            | 48-pin QFP (FA)    | M68CBL05C  | M68TC08SR12FA48              |   |

1. New development tool product to be introduced.

2. Each QFP target head adapter includes one TQSOCKET with guides (M68TQSxxxSyG1) and one TQPACK disposable surface mount adapter (M68TQPxxxSy1 – 1.2-mm lead length or M68TQPxxxSyM01 – 1.6-mm lead length). Order additional TQPACKs and TQSOCKETs (optional) using part numbers referenced in the Surface Mount Adapters column to support multiple target systems.

### 68HC11 Evaluation Board

| Products                                       | Board        |
|--|--------------|
| 68HC11A8<br>68HC11E9<br>68HC711E9<br>68HC811E2 | M68HC11EVBU2 |



*MICROCONTROLLERS (continued)*  
*HARDWARE TOOLS (continued)*  
**68HC05 Programmers**

| Product                  | Packages Supported   | Programming Adapter  | Programmer Board                                  |
|--------------------------|--|--|---|
| 68HC705B16<br>68HC705B32 | 52-pin PLCC (FN)<br>56-pin SDIP (B)                                      | n/a  | M68ICS05B Serial Programmer/In-Circuit Simulator  |
| 68HC705BD3<br>68HC705BD7 | 40-pin DIP (P)<br>42-pin SDIP (B)  | M68UPA05BD3040<br>M68UPA05BD3B42                                       | M68HC705UPGMR                                     |
| 68HC705C8A<br>68HC705C9A | 40-pin DIP (P/S)<br>44-pin PLCC (FN/FS)                                  | n/a  | M68ICS05C Serial Programmer/In-Circuit Simulator  |
| 68HC705E6                | 44-pin QFP (FB)<br>28-pin SOIC (DW)                                      | n/a  | M68HC705E6PGMR                                    |
| 68HC705F32               | 100-pin TQFP   | n/a  | X68HC705F32PGMR                                   |
| 68HC705H12               | 52-pin PLCC (FN)   | n/a  | X68HC705H12PGMR                                   |
| 68HC705KJ1<br>68HC705J1A | 16-pin and 20-pin DIP (P)<br>16-pin and 20-pin SOIC (DW)                 | n/a  | M68ICS05KJ Serial Programmer/In-Circuit Simulator |
| 68HC705J5A               | 16-pin DIP (P)<br>20-pin DIP (P)<br>20-pin SOIC (DW)                     | M68UPA05J5AP16<br>M68UPA05J5AP20<br>M68UPA05J5ADW20                    | M68HC705UPGMR                                     |
| 68HC705JB3               | 20-pin DIP (P)<br>28-pin DIP (P)<br>28-pin SOIC (DW)                     | M68UPA05JB3P20<br>M68UPA05JB3P28<br>M68UPA05JB3DW28                    | M68HC705UPGMR                                     |
| 68HC705JB4               | 28-pin DIP (P)<br>28-pin SOIC (DW)                                       | M68UPA05JB4P28<br>M68UPA05JB4DW28                                      | M68HC705UPGMR                                     |
| 68HC705JJ7               | 20-pin DIP (P)<br>20-pin SOIC (DW)                                       | n/a  | M68ICS05JP Serial Programmer/In-Circuit Simulator |
| 68HC705JP7               | 28-pin DIP (P)<br>28-pin SOIC (DW)                                       | n/a  | M68ICS05JP Serial Programmer/In-Circuit Simulator |
| 68HC705L16               | 80-pin QFP (FU/FZ)   | n/a  | KITPGMR05L16                                      |
| 68HC705P6A               | 28-pin DIP (P)<br>28-pin SOIC (DW)                                       | n/a  | M68ICS05P Serial Programmer/In-Circuit Simulator  |
| 68HC805P18               | 28-pin DIP (P/S)   | n/a  | X68HC805P18PGMR                                   |
| 68HC705PL4               | 20-pin DIP (P)<br>28-pin DIP (P)<br>20-pin SOIC (DW)<br>28-pin SOIC (DW) | M68UPA05PL4P20<br>M68UPA05PL4P28<br>M68UPA05PL4DW20<br>M68UPA05PL4DW28 | M68HC705UPGMR or M68HC705UGANG                    |
| 68HC805PV8               | 28-pin SOIC (DW)   | n/a  | X68HC805PV8PGMR                                   |
| 68HC705SR3               | 40-pin DIP (P)<br>44-pin QFP (FB)  | M68UPA05SR3P40<br>M68UPA05SR3FB44                                      | M68HC705UPGMR                                     |
| 68HC705X4                | 28-pin DIP (P/S)<br>28-pin SOIC (DW)                                     | n/a  | M68HC705X4PGMR                                    |
| 68HC705X32               | 64-pin QFP (FU)<br>68-pin PLCC (FN)                                      | n/a  | M68HC705X32PGMR                                   |

## MICROCONTROLLERS

MICROCONTROLLERS (continued)

HARDWARE TOOLS (continued)

### 68HC08 Programmers

| Product                      | Packages Supported   | Programming Adapter   | Programmer Board   |
|------------------------------|--|---|--|
| All 68HC908s                 | n/a<br>(In-circuit only)   | n/a   | MON08 Cyclone — Stand-alone programmer for in-circuit programming and debug (part number M68CYCLONE08) |
|                              | n/a<br>(In-circuit only)   | n/a   | MON08 Multilink Cable — For in-circuit programming and debug (part number M68MULTILINK08)              |
| 68HC908AB32                  | 64-pin QFP   | n/a   | M68ICS08AB Serial Programmer/In-Circuit Simulator  |
| 68HC908AB32                  | 64-pin QFP   | M68UPA08AB32FU64  | M68HC705UPGMR or M68HC705UGANG Parallel Programmer   |
| 68HC908AZ60A<br>68HC908AS60A | 64-pin QFP (FU)<br>52-pin PLCC (FN)  | n/a   | M68ICS08AZAS Serial Programmer/In-Circuit Simulator  |
| 68HC908BD48                  | 44-pin QFB (FB)<br>42-pin SDIP (B)<br>28-pin DIP (P)   | M68UPA08BD48FB44<br>M68UPA08BD48B42<br>M68UPA08BD48P28                                    | M68HC705UPGMR or M68HC705UGANG Parallel Programmer   |
| 68HC908GP32                  | 40-pin DIP (P)<br>44-pin QFP (FB)  | n/a   | M68ICS08GPGT Serial Programmer/In-Circuit Simulator: recommended for DIP and QFP programming           |
| 68HC908GP32                  | 40-pin DIP (P)<br>42-pin SDIP (B)<br>44-pin QFP (FB)   | M68UPA08GP32P40<br>M68UPA08GP32B42<br>M68UPA08GP32FB44                                    | M68HC705UPGMR or M68HC705UGANG Parallel Programmer   |
| 68HC908GR8<br>68HC908GR4     | 28-pin DIP (P)<br>32-pin QFP (FA)  | n/a   | M68ICS08GR Serial Programmer/In-Circuit Simulator  |
| 68HC908JB8                   | 20-pin DIP (P)<br>20-pin SOIC (DW)<br>28-pin SOIC (DW)<br>42-pin SDIP (B)<br>44-pin QFP (FB) | n/a   | M68ICS08JB Serial Programmer/In-Circuit Simulator  |
| 68HC908JB8                   | 20-pin DIP (P)<br>20-pin SOIC (DW)<br>28-pin SOIC (DW)<br>42-pin SDIP (B)<br>44-pin QFP (FB) | M68UPA08JB8P20<br>M68UPA08JB8DW20<br>M68UPA08JB8DW28<br>M68UPA08JB8B42<br>M68UPA08JB8FB44 | M68HC705UPGMR or M68HC705UGANG Parallel Programmer   |
| 68HC908JB16/JG16             | 28-pin SOIC (DW)<br>32-pin LQFP (FA)   | n/a   | M68ICS08JB16 Serial Programmer/In-Circuit Simulator  |
| 68HC908JB16                  | 28-pin SOIC (DW)<br>32-pin LQFP (FA)   | M68PA08JB16DW28<br>M68PA08JB16FA32  | M68SPGMR08 Serial Programmer   |
| 68HC908JG16                  | 32-pin LQFP (FA)   | M68PA08JG16FA32   | M68SPGMR08 Serial Programmer   |
| 68HC908JK3/JK1               | 20-pin DIP (P)<br>20-pin SOIC (DW)   | n/a   | M68ICS08JLJK Serial Programmer/In-Circuit Simulator  |
| 68HC908JK3/JK1               | 20-pin DIP (P)<br>20-pin SOIC (DW)   | M68UPA08JK3P20<br>M68UPA08JK3DW20   | M68HC705UPGMR or M68HC705UGANG Parallel Programmer   |
| 68HC908JL3                   | 28-pin DIP (P)<br>28-pin SOIC (DW)   | n/a   | M68ICS08JLJK Serial Programmer/In-Circuit Simulator  |
| 68HC908JL3                   | 28-pin DIP (P)<br>28-pin SOIC (DW)   | M68UPA08JL3P28<br>M68UPA08JL3DW28   | M68HC705UPGMR or M68HC705UGANG Parallel Programmer   |

*MICROCONTROLLERS (continued)*  
*HARDWARE TOOLS (continued)*  
**68HC08 Programmiers (continued)**

| Product                                  | Packages Supported                                     | Programming Adapter | Programmer Board  |
|--|--|---------------------|---|
| 68HC908KX8<br>68HC908KX2                 | 16-pin DIP (P)<br>16-pin SOIC (DW)                     | n/a                 | M68ICS08KX  |
| 68HC908LD64                              | 64-pin QFP (FU)  | M68UPA08LD64FU64    | M68HC705UPGMR or M68HC705UGANG Parallel Programmer        |
|  |  | M68PA08LD64FU64     | M68SPGMR08 Serial Programmer with No In-Circuit Simulator |
|  |  | n/a                 | M68PGMR08DDC FLASH Programming through DDC Interface      |
| 68HC908LJ12                              | 64-pin QFP (FU)<br>52-pin QFP (FB)<br>64-pin LQFP (PB) | n/a                 | M68ICS08LJ Serial Programmer/In-Circuit Simulator         |
| 68HC908MR32<br>68HC908MR16<br>68HC908MR8 | 56-pin SDIP (B)<br>64-pin QFP (FU)<br>32-pin QFP (FA)  | n/a                 | M68ICS08MR Serial Programmer/In-Circuit Simulator         |
| 68HC908RK2                               | 20-pin SOIC (DW)                                       | n/a                 | M68ICS08RK2 Serial Programmer/In-Circuit Simulator        |
| 68HC908SR12                              | 42-pin SDIP (B)<br>48-pin QFP (FA)                     | n/a                 | M68ICS08SR Serial Programmer/In-Circuit Simulator         |
| 68HC908SR12                              | 42-pin SDIP (B)  | M68UPA08SR12B42     | M68HC705UPGMR or M68HC705UGANG Parallel Programmer        |
|  | 48-pin QFP (FA)  | M68UPA08SR12FA48    |   |

### MICROCONTROLLERS (continued)

### DEVELOPMENT SYSTEMS (continued)

#### HCS12 DEVELOPMENT KIT

The HCS12 Development Kit is an economical tool for developing code and evaluating it on HCS12 “Dx”, “A”, and “B” Family MCUs. This easy to order kit combines the BDM Multilink and an evaluation board (EVB). The EVB simplifies user evaluation of prototype hardware and software by providing the essential MCU timing and I/O circuitry as well as a prototype area to allow custom interfacing. The BDM Multilink interfaces to the EVB through the 6-pin BDM connector for real-time in-circuit emulation and fast FLASH programming.

##### HCS12DP256 Evaluation Board

- MC9S12DP256 MCU provides superset evaluation of all HCS12 “Dx”, “A”, and “B” derivatives
- 256K Bytes FLASH
- Prototyping area
- Header connectors for access to the MCU’s I/O and bus lines
- RS232 Communications
- CAN Communication

##### BDM Multilink

- Universal development tool for all BDM 68HC12s and HCS12s
- Real-time in-circuit emulation and debug
- Fast in-circuit programming
- Auto-detects frequency
- Small unobtrusive size (approximately 3” x 2” x 3/4”)
- Supports 2 V to 5.5 V targets

##### CodeWarrior Integrated Development Environment

- Full debugger, assembler, linker, and programmer
- Evaluation C compiler

The order number for this product is M68KIT912DP256.

#### BDM STAND-ALONE PROGRAMMER

The BDM Programmer provides a fast, efficient, low-cost method of programming the on-chip FLASH and EEPROM memory of our 68HC12 and HCS12 Families utilizing the BDM interface. The programmer can be used stand-alone with a simple push button and LED interface.

- Fast in-circuit stand-alone programming
  - Simple push button and LED user interface
  - Performs erase, program, and verify cycle on 256K FLASH parts in as little as 10.5 seconds
- Host-based programming with scripting capability to execute a series of commands
  - Automated programming of test routines, test execution, erase, and final software programming
- Optionally provides FLASH programming voltage via the BDM connector

The order number for this product is X68BDMPGMR12.

*MICROCONTROLLERS (continued)*  
*HARDWARE TOOLS (continued)*  
**68HC12 Family**

| Product         | Part Number     | Evaluation Board | Serial Debug Interface Cable (BDM Cable) | ROM Monitor | Software | User Manual | Programming | Additional Information   |
|-----------------|-----------------|------------------|--|-------------|----------|-------------|-------------|--|
| 68HC812A4       | M68HC12A4EVB    | •                |  | •           | •        | •           |             | Evaluation board for HC812A4.  |
| 68HC912B32      | M68EVB912B32    | •                |  | •           | •        | •           |             | Evaluation board for HC912B32.   |
| 68HC912BC32     | M68KIT912D60A   | •                |  | •           |          | •           |             | Kit with HC912D60 evaluation board (EVB) and serial debug interface (SDI) cable. |
|                 | M6EVB912D60A    |                  | •  |             | •        | •           | •           | Evaluation board for HC912D60A.  |
| 98HC912D60A     | M68KIT912DG128A | •                | •  |             | •        | •           | •           | Serial cable to connect to HC12 BDM debug connector.                             |
|                 | M68EVB912DG128A | •                |  |             |          | •           |             | Kit with HC912DG128A.  |
| 68HC912DG128A   | M68KIT912DG128A | •                | •  |             | •        | •           | •           | Kit with HC912DG128A EVB and SDI.  |
|                 | M68EVB912DG128A | •                |  |             |          | •           |             | Evaluation board for HC912DG128A.  |
| All HC12 Family | X68BDMPGMR12    |                  |  |             |          |             | •           | Serial programmer usable without host PC.  |

**HCS12 Family**

| Product   | Part Number     | Evaluation Board | BDM Multilink Cable | ROM Monitor | Software | User Manual | Programming | Additional Information   |
|-----------|-----------------|------------------|---------------------|-------------|----------|-------------|-------------|--|
| 9S12DP256 | M68EVB912DP256  | •                |                     | •           | •        | •           |             | Evaluation board for 9512DX256.  |
| 9S12DT256 | M68KIT912DP256  | •                | •                   | •           | •        | •           | •           | Kit with 912DP256 evaluation board and serial debug interface cable (SDI). |
| 9S12DJ256 |                 |                  | •                   |             | •        | •           | •           | BDM Multilink cable to connect to HC12 BDM debug connector.                |
| 9S12DG256 | M68MULTILINK12  |                  | •                   |             | •        | •           |             |  |
| 9S12A256  | CWDEVSYS12DP256 | •                | •                   | •           | •        | •           |             | Includes full compiler and EVB in handsome suitcase.                       |
|           | X68BDMPGMR12    |                  |                     |             |          |             | •           | Serial programmer usable without host PC.                                  |
| 9S12DT128 | M68EVB912DP128  | •                |                     | •           | •        | •           |             | Evaluation board for 9512DX128.  |
| 9S12DJ128 | M68KIT912DP128  | •                | •                   | •           | •        | •           | •           | Kit with 912DP128 evaluation board and serial debug interface cable (SDI). |
| 9S12DG128 |                 |                  | •                   |             | •        | •           | •           | BDM multiline cable to connect to HC12 BDM debug connector.                |
| 9S12A128  | X68BDMPGMR12    |                  |                     |             |          |             | •           | Serial programmer usable without host PC.                                  |
| 9S12H128  | M68MULTILINK12  |                  | •                   |             | •        | •           | •           | Includes full compiler and EVB in handsome suitcase.                       |
| 9S12H256  | X68BDMPGMR12    |                  |                     |             |          |             | •           | Serial programmer usable without host PC.                                  |

## MICROCONTROLLERS

*MICROCONTROLLERS (continued)*

*HARDWARE TOOLS (continued)*

**68HC16 and 68300 MEVB Families**

| Product   | Platform    | Package           | Microcontroller Personality Board | BDM Cable (Note)    | Software             |
|-----------|-------------|-------------------|-----------------------------------|---------------------|----------------------|
| 68HC916X1 | M68MPFB1632 | 120-pin PQFP (FH) | M68MPB916X1C                      | M68ICD16 or M68SDIL | Included M68SDBG16AB |
| 68HC16Y1  | M68MPFB1632 | 160-pin PQFP (FT) | M68MPB16Y1B                       | M68ICD16 or M68SDIL | Included M68SDBG16AB |
| 68HC16Z1  | M68MPFB1632 | 132-pin PQFP (FC) | M68MPB16Z1B                       | M68ICD16 or M68SDIL | Included M68SDBG16AB |
| 68331     | M68MPFB1632 | 132-pin PQFP (FC) | M68MPB331B                        | M68ICD32 or M68SDIL | Included M68SDBG32AB |
| 68332A    | M68MPFB1632 | 132-pin PQFP (FC) | M68MPB332AB                       | M68ICD32 or M68SDIL | Included M68SDBG32AB |
| 68332G    | M68MPFB1632 | 132-pin PQFP (FC) | M68MPB332GB                       | M68ICD32 or M68SDIL | Included M68SDBG32AB |
| 68336     | M68MPFB1632 | 160-pin PQFP (FT) | M68MPB336GB                       | M68ICD32 or M68SDIL | Included M68SDBG32AB |
| 68376     | M68MPFB1632 | 160-pin PQFP (FT) | M68MPB376GB                       | M68ICD32 or M68SDIL | Included M68SDBG32AB |

Note:

ICD = Parallel cable to connect to the HC16 or 6833X BDM debug connector

SDI = Serial cable to connect to the HC16 or 6833X BDM connector

## M68300 Business Card Computer

| Product | Platform  | BCC        |
|---------|-----------|------------|
| 68331   | M68300PFB | M68BCC331  |
| 68332A  | M68300PFB | M68BCC332A |
| 68332G  | M68300PFB | M68BCC332G |

## MCORE Family

| Product Supported | Description  | Part Number   | Serial Cable | CD ROM | User Manuals | Power Supply | Silicon Samples |
|-------------------|--|---------------|--------------|--------|--------------|--------------|-----------------|
| MMC2107           | Low-cost evaluation board  | MMCEVB2107    | •            | •      | •            | •            | •               |
|                   | Mid-range evaluation board   | MMCMB2107     | •            | •      | •            | •            | •               |
|                   | Mid-range evaluation board plus platform board                       | KITEVSMMC2107 | •            | •      | •            | •            | •               |
|                   | Serial debugger interface to 6833X BDM or MCORE OnCE debug connector | MMC14EBDI02   | •            |        | •            | •            |                 |
| MMC2114           | Low-cost evaluation board  | MMCEVB2114    | •            | •      | •            | •            | •               |
|                   | Serial debugger interface to 6833X BDM or MCORE OnCE debug connector | MMCCMB2114    | •            | •      | •            | •            | •               |
|                   |  | MMC14EBDI02   | •            |        | •            | •            |                 |

*MICROCONTROLLERS (continued)*  
*THIRD PARTY TOOLS (continued)*

**Microcontroller Third Party Development Tool Partners**

| Company Name                              | HC05 | HC08 | HC11 | HC12 | HC16 | World Wide Web URL                    | Email Address                      |
|---|------|------|------|------|------|---------------------------------------|------------------------------------|
| <b>Adapters</b>                           |      |      |      |      |      |                                       |                                    |
| Adapters.com                              | •    | •    | •    | •    | •    | www.adapters.com                      | sales@adapters.com                 |
| Logical Systems Corp.                     |      | •    | •    |      |      | www.logicals.com                      | info@logicals.com                  |
| <b>Assemblers</b>                         |      |      |      |      |      |                                       |                                    |
| Avocet Systems, Inc.                      | •    | •    | •    | •    | •    | www.avocetsystems.com                 | sales@avocetsystems.com            |
| Engineers Collaborative, Inc., The (TECI) | •    |      | •    |      |      | www.tec-l.com                         | sales@tec-l.com                    |
| Green Hills Software                      |      |      |      |      |      | www.ghs.com                           | sales@ghs.com                      |
| Metrowerks                                | •    | •    | •    | •    | •    | www.metrowerks.com                    | info@metrowerks.com                |
| IAR Systems                               | •    |      | •    | •    | •    | www.iar.se                            | info@iar.se                        |
| P&E Microcomputer Systems                 | •    | •    | •    | •    | •    | www.pemicro.com                       | pemicro@pemicro.com                |
| TASKING                                   |      |      |      |      |      | www.tasking.com                       | sales@tasking-us.com               |
| Virtual Micro Design                      | •    | •    | •    |      |      | www.vmdesign.com                      | info@vmdesign.com                  |
| <b>BDM Support Tools</b>                  |      |      |      |      |      |                                       |                                    |
| Archimedes Software, Inc.                 |      |      |      |      | •    | www.archimedessoftware.com            | customer-service@archimedesinc.com |
| Axiom Mfg.                                |      |      |      | •    |      | www.axman.com                         | Gary@ axman.com                    |
| Cosmic Software, Inc.                     |      |      |      | •    | •    | www.cosmic-software.com               | info@cosmic-us.com                 |
| Wind River Systems                        |      |      |      |      |      | www.wrs.com                           | inquiries@windriver.com            |
| Hitex Development Tools                   |      |      |      | •    |      | www.hitex.com                         | info@hitex.com                     |
| Metrowerks                                |      |      |      | •    | •    | www.metrowerks.com                    | info@metrowerks.com                |
| Agilent Technologies, Inc.                |      |      |      |      |      | www.agilent.com                       | www.agilent.com                    |
| Nohau Corporation                         |      |      |      | •    | •    | www.nohau.com                         | sales@nohau.com                    |
| Avocet Systems, Inc.                      |      |      |      | •    |      | www.avocetsystems.com                 | sales@avocetsystems.com            |
| IAR Systems                               |      |      |      | •    |      | www.iar.se                            | info@iar.se                        |
| iSYSTEM                                   |      |      |      | •    | •    | www.isystem.com                       | emulators@isystem.com              |
| Kevin W Ross                              |      |      |      | •    |      | www.nwlink.com/~kevinro/products.html | kevinro@nwlink.com                 |
| Lauterbach, Inc.                          |      |      |      | •    | •    | www.lauterbach.com                    | info@lauterbach.com                |
| Macraigor Systems LLC                     |      |      |      |      |      | www.macraigor.com                     | sales@macraigor.com                |
| Microtek International, Inc.              |      |      |      |      |      | www.microtek.com.tw/mice              | mice@smtp.microtek.com.tw          |
| Noral Micrologics, Inc.                   |      |      |      | •    |      | www.noral.com/pages/bdmhc12.htm       | www.noral.com/pages/moreinfo.htm   |
| P&E Microcomputers Systems                |      |      |      | •    | •    | www.pemicro.com                       | pemicro@pemicro.com                |
| Sid Price's Software Tools                |      |      |      | •    |      | www.softtools.com/tools               | sales@softtools.com                |
| TASKING                                   |      |      |      |      |      | www.tasking.com                       | sales@tasking-us.com               |

## MICROCONTROLLERS

*MICROCONTROLLERS (continued)*

*THIRD PARTY TOOLS (continued)*

### Microcontroller Third Party Development Tool Partners (continued)

| Company Name                | HC05 | HC08 | HC11 | HC12 | HC16 | World Wide Web URL           | Email Address                           |
|-----------------------------|------|------|------|------|------|------------------------------|---|
| <b>Code Coverage Tools</b>  |      |      |      |      |      |                              |   |
| Ashling Microsystems, Ltd.  | •    | •    | •    | •    |      | www.ashling.com              | www.ashling.com/motocontact.html        |
| Cosmic Software, Inc.       | •    | •    | •    | •    | •    | www.cosmic-software.com      | info@cosmic-us.com                      |
| Wind River Systems          |      |      |      |      |      | www.wrs.com                  | inquiries@windriver.com                 |
| Green Hills Software        |      |      |      |      |      | www.ghs.com                  | sales@ghs.com                           |
| Hitex Development Tools     | •    | •    | •    | •    |      | www.hitex.com                | info@hitex.com                          |
| Metrowerks                  | •    | •    | •    | •    | •    | www.metrowerks.com           | info@metrowerks.com                     |
| iSYSTEM                     | •    | •    | •    |      | •    | www.isystem.com              | emulators@isystem.com                   |
| TASKING                     |      |      |      |      |      | www.tasking.com              | sales@tasking-us.com                    |
| <b>Compilers</b>            |      |      |      |      |      |                              |   |
| Archimedes Software, Inc.   | •    | •    | •    | •    | •    | www.archimedessoftware.com   | customer-service@archimedesinc.com      |
| Avocet Systems, Inc.        |      |      | •    |      | •    | www.avocetsystems.com        | sales@avocetsystems.com                 |
| Byte Craft Limited          | •    | •    |      |      |      | www.bytecraft.com/c6805.html | info@bytecraft.com                      |
| ImageCraft Creations, Inc.  |      | •    | •    | •    | •    | www.imagecraft.com/software  | info@imagecraft.com                     |
| TASKING                     |      |      |      |      |      | www.tasking.com              | sales@tasking-us.com                    |
| AppForge, Inc.              |      |      |      |      |      | www.appforge.com             | info@appforge.com                       |
| Cosmic Software, Inc.       | •    | •    | •    | •    | •    | www.cosmic-software.com      | info@cosmic-us.com                      |
| Wind River Systems          |      |      |      |      |      | www.wrs.com                  | inquiries@windriver.com                 |
| Green Hills Software        |      |      |      |      |      | www.ghs.com                  | sales@ghs.com                           |
| Metrowerks                  | •    | •    | •    | •    | •    | www.metrowerks.com           | info@metrowerks.com                     |
| IAR Systems                 |      |      | •    | •    | •    | www.iar.se                   | info@iar.se                             |
| Irvine Compiler Corporation |      |      |      |      |      | www.irvine.com/ppc.html      | info@irvine.com                         |
| MCT Paul & Scherer GmbH     |      |      |      |      |      | www.mct.net                  | sales@mct.de                            |
| Mekatronix, Inc.            |      |      | •    |      |      | www.mekatronix.com           | customer@mekatronix.com                 |
| <b>Debuggers</b>            |      |      |      |      |      |                              |   |
| Ashling Microsystems, Ltd.  | •    | •    | •    | •    | •    | www.ashling.com/advice       | www.ashling.com/advice/motocontact.html |
| Avocet Systems, Inc.        | •    |      | •    | •    | •    | www.avocetsystems.com        | sales@avocetsystems.com                 |
| Cosmic Software, Inc.       | •    | •    | •    | •    | •    | www.cosmic-software.com      | info@cosmic-us.com                      |
| Wind River Systems          |      |      |      |      |      | www.wrs.com                  | inquiries@windriver.com                 |
| Green Hills Software        |      |      |      |      |      | www.ghs.com                  | sales@ghs.com                           |
| Metrowerks                  | •    | •    | •    | •    | •    | www.metrowerks.com           | info@metrowerks.com                     |



## MICROCONTROLLERS (continued)

## THIRD PARTY TOOLS (continued)

### Microcontroller Third Party Development Tool Partners (continued)

| Company Name                              | HC05 | HC08 | HC11 | HC12 | HC16 | World Wide Web URL                    | Email Address                    |
|---|------|------|------|------|------|---------------------------------------|----------------------------------|
| <b>Debuggers (continued)</b>              |      |      |      |      |      |                                       |                                  |
| IAR Systems                               |      |      | •    | •    | •    | www.iar.se                            | info@iar.se                      |
| iSYSTEM                                   | •    | •    | •    | •    | •    | www.isystem.com                       | emulators@isystem.com            |
| Lauterbach, Inc.                          | •    | •    | •    | •    | •    | www.lauterbach.com                    | info@lauterbach.com              |
| MCT Paul & Scherer GmbH                   |      |      |      |      |      | www.mct.net                           | sales@mct.de                     |
| Nohau Corporation                         |      |      |      | •    |      | www.nohau.com                         | sales@nohau.com                  |
| Noral Micrologics, Inc.                   |      |      |      | •    |      | www.noral.com/pages/bdmhc12.htm       | www.noral.com/pages/moreinfo.htm |
| P&E Microcomputers Systems                | •    |      | •    | •    | •    | www.pemicro.com                       | pemicro@pemicro.com              |
| Sid Price's Software Tools                | •    |      | •    | •    |      | www.softtools.com/tools               | sales@softtools.com              |
| TASKING                                   |      |      |      |      |      | www.tasking.com                       | sales@tasking-us.com             |
| Virtual Micro Design                      | •    | •    | •    |      |      | www.vmdesign.com                      | info@vmdesign.com                |
| <b>Evaluation Boards</b>                  |      |      |      |      |      |                                       |                                  |
| Avnet Design Services                     |      | •    |      |      |      | www.ads.avnet.com/evalkits.html       | ads@avnet.com                    |
| Axiom Manufacturing                       |      | •    | •    | •    |      | www.axman.com                         | Gary@ axman.com                  |
| emWare                                    |      | •    |      |      |      | www.emware.com                        | sales@emware.com                 |
| Engineers Collaborative, Inc., The (TECI) | •    |      | •    |      |      | www.tec-l.com                         | sales@tec-l.com                  |
| ETAS, Inc.                                |      |      |      |      |      | www.etasinc.com                       | sales@etasinc.com                |
| Kevin W Ross                              |      | •    | •    |      |      | www.nwlink.com/~kevinro/products.html | kevinro@nwlink.com               |
| MCT Paul & Scherer GmbH                   |      | •    |      |      |      | www.mct.net                           | sales@mct.de                     |
| Mekatronix, Inc.                          |      | •    |      |      |      | www.mekatronix.com                    | customer@mekatronix.com          |
| Microtek International, Inc.              |      |      |      |      |      | www.microtek.com.tw/mice              | mice@smtp.microtek.com.tw        |
| Noral Micrologics                         |      |      |      | •    |      | www.noral.com/pages/bdmcfire.htm      | www.noral.com/pages/moreinfo.htm |
| Oztechnics P/L                            | •    |      | •    |      |      | www.oztechnics.com.au                 | info@oztechnics.com.au           |
| P&E Microcomputers Systems                |      |      |      |      | •    | www.pemicro.com                       | pemicro@pemicro.com              |
| SofTec Microsystems                       |      | •    |      |      |      | www.softecmicro.com                   | info@softecmicro.com             |
| <b>Fuzzy and Neuro Tools</b>              |      |      |      |      |      |                                       |                                  |
| Aptronix, Inc.                            | •    | •    | •    |      | •    | www.aptronix.com/fide                 | sales@aptronix.com               |
| Inform Software Corp.                     | •    | •    | •    | •    | •    | www.fuzzytech.com                     | hotline@inform-ac.com            |
| <b>Code Generation Tools</b>              |      |      |      |      |      |                                       |                                  |
| Aisys, Inc.                               | •    | •    |      |      |      | www.aisysinc.com                      | info@aisysinc.com                |
| AppForge Software, LLC                    |      |      |      |      |      | www.appforge.com                      | info@appforge.com                |
| ECS, Inc.                                 |      |      |      |      |      | www.go-ecs.com                        | info-mcu@go-ecs.com              |
| ETAS, Inc.                                |      |      |      | •    |      | www.etasinc.com                       | sales@etasinc.com                |

## MICROCONTROLLERS

*MICROCONTROLLERS (continued)*

*THIRD PARTY TOOLS (continued)*

### Microcontroller Third Party Development Tool Partners (continued)

| Company Name                             | HC05 | HC08 | HC11 | HC12 | HC16 | World Wide Web URL                      | Email Address                           |
|--|------|------|------|------|------|---|---|
| <b>In-Circuit Emulators (ICE)</b>        |      |      |      |      |      |   |   |
| Ashling Microsystems, Ltd.               | •    | •    | •    | •    | •    | www.ashling.com/advice                  | www.ashling.com/advice/motocontact.html |
| Wind River Systems                       |      |      |      |      |      | www.wrs.com                             | inquiries@windriver.com                 |
| Engineers Collaborative Inc.,The (TECI)  | •    |      | •    |      |      | www.tec-l.com                           | sales@tec-l.com                         |
| Hitex Development Tools                  | •    | •    | •    | •    |      | www.hitex.com                           | info@hitex.com                          |
| Avocet Systems, Inc.                     |      |      | •    |      | •    | www.avocetsystems.com                   | sales@avocetsystems.com                 |
| iSYSTEM                                  | •    | •    | •    | •    |      | www.isystem.com                         | emulators@isystem.com                   |
| Lauterbach, Inc.                         | •    | •    | •    | •    | •    | www.lauterbach.com                      | info@lauterbach.com                     |
| MetaLink Corporation                     | •    |      | •    |      |      | www.metaice.com                         | sales@metaice.com                       |
| Microtek International Inc.              |      |      |      |      |      | www.microtek.com.tw/mice                | mice@smtp.microtek.com.tw               |
| Nohau Corporation                        |      |      | •    |      | •    | www.nohau.com                           | sales@nohau.com                         |
| Noral Micrologics, Inc.                  |      |      |      |      |      | www.noral.com/pages/bdmcfire.htm        | www.noral.com/pages/moreinfo.htm        |
| <b>Logic Analyzers</b>                   |      |      |      |      |      |   |   |
| Corelis, Inc.                            |      |      |      |      |      | www.Corelis.com                         | sales@corelis.com                       |
| dli digital logic instruments            |      |      | •    | •    | •    | www.dli.de                              | sales@dli.de                            |
| Agilent Technologies, Inc.               |      |      | •    | •    |      | www.agilent.com                         | www.agilent.com                         |
| iSYSTEM                                  | •    | •    | •    | •    | •    | www.isystem.com                         | emulators@isystem.com                   |
| Tektronix, Inc.                          |      |      | •    | •    | •    | www.tek.com/Measurement/logic_analyzers |   |
| <b>Performance Analysis Tools</b>        |      |      |      |      |      |   |   |
| Ashling Microsystems, Ltd.               | •    | •    | •    | •    |      | www.ashling.com                         | www.ashling.com/motocontact.html        |
| Avocet Systems, Inc.                     |      |      | •    |      | •    | www.avocetsystems.com                   | sales@avocetsystems.com                 |
| Wind River Systems                       |      |      |      |      |      | www.wrs.com                             | inquiries@windriver.com                 |
| Green Hills Software                     |      |      |      |      |      | www.ghs.com                             | sales@ghs.com                           |
| Hitex Development Tools                  | •    | •    | •    | •    |      | www.hitex.com                           | info@hitex.com                          |
| iSYSTEM                                  | •    | •    | •    |      | •    | www.isystem.com                         | emulators@isystem.com                   |
| Virtual Micro Design                     | •    | •    | •    |      |      | www.vmdesign.com                        | info@vmdesign.com                       |
| <b>Programmers</b>                       |      |      |      |      |      |   |   |
| BP Microsystems, Inc.                    | •    | •    | •    | •    | •    | www.bpmicro.com                         | info@bpmicro.com                        |
| Data I/O Corp.                           | •    | •    | •    |      | •    | www.dataio.com                          | webmaster@dataio.com                    |
| Engineers Collaborative, Inc.,The (TECI) | •    |      | •    |      |      | www.tec-l.com                           | sales@tec-l.com                         |
| Metrowerks                               | •    | •    | •    | •    | •    | www.metrowerks.com                      | info@metrowerks.com                     |
| Mekatronix, Inc.                         |      |      | •    |      |      | www.mekatronix.com                      | customer@mekatronix.com                 |

## MICROCONTROLLERS (continued)

## THIRD PARTY TOOLS (continued)

### Microcontroller Third Party Development Tool Partners (continued)

| Company Name                              | HC05 | HC08 | HC11 | HC12 | HC16 | World Wide Web URL              | Email Address                    |
|---|------|------|------|------|------|---------------------------------|----------------------------------|
| <b>Programmers (continued)</b>            |      |      |      |      |      |                                 |                                  |
| Noral Micrologics, Inc.                   |      |      |      | •    |      | www.noral.com/pages/bdmhc12.htm | www.noral.com/pages/moreinfo.htm |
| P&E Microcomputer Systems                 |      |      |      | •    | •    | www.pemicro.com                 | pemicro@pemicro.com              |
| Phyton, Inc.                              | •    |      |      | •    |      | www.phyton.com                  | info@phyton.com                  |
| SMS GmbH                                  | •    | •    | •    | •    |      | www.sms-sprint.com              | info@sms-sprint.com              |
| <b>Real-Time Operating Systems (RTOS)</b> |      |      |      |      |      |                                 |                                  |
| Accelerated Technology Inc.               |      |      | •    |      | •    | www.atinucleus.com              | info@atinucleus.com              |
| AppForge, Inc.                            |      |      |      |      |      | www.appforge.com                | info@appforge.com                |
| Avocet Systems, Inc.                      | •    | •    | •    | •    | •    | www.avocetsystems.com           | sales@avocetsystems.com          |
| CMX Systems, Inc.                         | •    | •    | •    | •    | •    | www.cmx.com                     | cmx@cmx.com                      |
| OSE Systems, Inc.                         |      |      | •    |      |      | www.enea.com                    | info@enea.com                    |
| ETAS Inc.                                 |      |      |      | •    |      | www.etasinc.com                 | sales@etasinc.com                |
| Green Hills Software                      |      |      |      |      |      | www.ghs.com                     | sales@ghs.com                    |
| Metrowerks                                |      |      |      |      | •    | www.metrowerks.com              | info@metrowerks.com              |
| KADAK Products, Ltd.                      |      |      |      |      |      | www.kadak.com                   | amxsales@kadak.com               |
| Precise Software Technologies, Inc.       |      |      |      |      |      | www.psti.com                    | info@psti.com                    |
| TASKING                                   |      |      |      |      |      | www.tasking.com                 | sales@tasking-us.com             |
| U S Software                              |      |      | •    |      | •    | www.ussw.com                    | sales@ussw.com                   |
| <b>Simulation Tools</b>                   |      |      |      |      |      |                                 |                                  |
| Cosmic Software, Inc.                     | •    | •    | •    | •    | •    | www.cosmic-software.com         | info@cosmic-us.com               |
| Wind River Systems                        |      |      |      |      |      | www.wrs.com                     | inquiries@windriver.com          |
| Green Hills Software                      |      |      |      |      |      | www.ghs.com                     | sales@ghs.com                    |
| Metrowerks                                | •    | •    | •    | •    | •    | www.metrowerks.com              | info@metrowerks.com              |
| Oztechnics P/L                            | •    |      | •    |      |      | www.oztechnics.com.au           | info@oztechnics.com.au           |
| P&E Microcomputer Systems                 | •    | •    | •    | •    | •    | www.pemicro.com                 | pemicro@pemicro.com              |
| TASKING                                   |      |      |      |      |      | www.tasking.com                 | sales@tasking-us.com             |
| Virtual Micro Design                      | •    | •    | •    |      |      | www.vmdesign.com                | info@vmdesign.com                |

## MICROCONTROLLERS

*MICROCONTROLLERS (continued)*

*THIRD PARTY TOOLS (continued)*

**32-Bit Third Party Tools 68xxx, 683xx, MPC500, MCORE, and ColdFire**

| Company                     | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                   |
|-----------------------------|-------|-------|--------|-------|----------|-------------------------------|
| <b>Assemblers</b>           |       |       |        |       |          |                               |
| Avocet Systems, Inc.        |       | •     |        |       |          | www.avocetsystems.com         |
| Green Hills Software        | •     | •     | •      | •     | •        | www.ghs.com                   |
| P&E Microcomputer Systems   |       | •     |        |       | •        | www.pemicro.com               |
| Wind River Systems          | •     | •     | •      | •     | •        | www.wrs.com                   |
| Company                     | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                   |
| <b>BDM Support Tools</b>    |       |       |        |       |          |                               |
| Cosmic Software             |       | •     |        |       |          | www.cosmic-software.com       |
| Wind River Systems          |       | •     | •      | •     | •        | www.wrs.com                   |
| Hitex Development Tools     |       | •     |        |       |          | www.hitex.com                 |
| Agilent Technologies, Inc.  |       | •     | •      | •     |          | www.agilent.com               |
| iSystem                     |       | •     |        | •     |          | www.isystem.com               |
| Lauterbach                  |       | •     |        | •     | •        | www.lauterbach.com            |
| Macraigor Systems LLC       |       | •     | •      |       |          | www.macraigor.com             |
| P&E Microcomputers Systems  |       | •     |        |       | •        | www.pemicro.com               |
| TASKING                     |       | •     |        |       |          | www.tasking.com               |
| Company                     | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                   |
| <b>Code Coverage Tools</b>  |       |       |        |       |          |                               |
| Ashling Microsystems        |       |       | •      |       |          | www.ashling.com               |
| Cosmic Software             |       | •     |        |       |          | www.cosmic-software.com       |
| Wind River Systems          | •     | •     | •      | •     | •        | www.wrs.com                   |
| Green Hills Software        | •     | •     | •      | •     | •        | www.ghs.com                   |
| Hitex Development Tools     |       | •     |        |       |          | www.hitex.com                 |
| iSystem                     |       | •     | •      |       |          | www.isystem.com               |
| TASKING                     |       | •     |        | •     |          | www.tasking.com               |
| Company                     | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                   |
| <b>Compilers</b>            |       |       |        |       |          |                               |
| Accelerated Technology Inc. |       | •     | •      |       | •        | www.acceleratedtechnology.com |
| Byte Craft Limited          |       |       |        | •     |          | www.bytecraft.com             |
| TASKING.                    |       | •     |        | •     |          | www.tasking.com               |
| Cosmic Software             |       | •     |        |       |          | www.cosmic-software.com       |
| Wind River Systems          | •     | •     | •      | •     | •        | www.wrs.com                   |
| Green Hills Software        | •     | •     | •      | •     | •        | www.ghs.com                   |
| P&E Microcomputers Systems  |       | •     |        |       | •        | www.pemicro.com               |
| GNU                         | •     |       |        |       | •        | www.gnu.com                   |
| Metrowerks                  |       | •     | •      | •     | •        | www.metrowerks.com            |

## MICROCONTROLLERS (continued)

### THIRD PARTY TOOLS (continued)

#### 32-Bit Third Party Tools 68xxx, 683xx, MPC500, MCORE, and ColdFire (continued)

| Company   | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                             |
|---|-------|-------|--------|-------|----------|---|
| <b>Debuggers</b>  |       |       |        |       |          |   |
| Ashling Microsystems                                    |       | •     | •      |       |          | www.ashling.com                         |
| Accelerated Technology Inc.                             |       | •     | •      | •     | •        | www.acceleratedtechnology.com           |
| Wind River Systems                                      | •     | •     | •      | •     | •        | www.wrs.com                             |
| Green Hills Software                                    | •     | •     | •      | •     | •        | www.ghs.com                             |
| iSystem   |       | •     | •      | •     |          | www.isystem.com                         |
| Lauterbach  | •     | •     | •      | •     | •        | www.lauterbach.com                      |
| P&E Microcomputers Systems                              |       | •     |        |       | •        | www.pemicro.com                         |
| Metrowerks  |       | •     | •      | •     | •        | www.metrowerks.com                      |
| Company   | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                             |
| <b>Evaluation Boards</b>                                |       |       |        |       |          |   |
| Axiom Manufacturing                                     |       |       | •      | •     |          | www.axman.com                           |
| Arrow   |       | •     | •      | •     | •        | www.arrow.com                           |
| Avnet   |       | •     | •      | •     | •        | www.avnet.com                           |
| Future  |       | •     | •      | •     | •        | www.future.com                          |
| Matrix Design Inc.                                      |       |       |        |       | •        | www.cadreiii.com                        |
| Metrowerks  |       | •     | •      | •     | •        | www.metrowerks.com                      |
| Company   | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                             |
| <b>Logic Analyzers</b>                                  |       |       |        |       |          |   |
| Agilent Technologies, Inc.                              |       | •     | •      | •     |          | www.agilent.com                         |
| iSystem   |       | •     |        |       |          | www.isystem.com                         |
| Tektronix   |       | •     | •      | •     |          | www.tek.com/measurement/logic_analyzers |
| Company   | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address                             |
| <b>In-Circuit Emulators or Hardware Debug Interface</b> |       |       |        |       |          |   |
| Ashling Microsystems                                    |       | •     | •      |       |          | www.ashling.com                         |
| Wind River Systems                                      |       | •     | •      |       | •        | www.wrs.com                             |
| Hitex Development Tools                                 |       | •     |        |       |          | www.hitex.com                           |
| iSystem   |       | •     | •      |       |          | www.isystem.com                         |
| Lauterbach  |       | •     | •      |       |          | www.lauterbach.com                      |
| Microtek International Inc.                             |       | •     |        |       | •        | www.microtek.com.tw/mice                |

## MICROCONTROLLERS

*MICROCONTROLLERS (continued)*

*THIRD PARTY TOOLS (continued)*

**32-Bit Third Party Tools 68xxx, 683xx, MPC500, MCORE, and ColdFire (continued)**

| Company                            | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address        |
|------------------------------------|-------|-------|--------|-------|----------|--------------------|
| <b>Performance Analysis Tools</b>  |       |       |        |       |          |                    |
| Wind River Systems                 | •     | •     | •      | •     | •        | www.wrs.com        |
| Green Hills Software               | •     | •     | •      | •     | •        | www.ghs.com        |
| iSystem                            |       | •     | •      |       |          | www.isystem.com    |
| Company                            | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address        |
| <b>Real-Time Operating Systems</b> |       |       |        |       |          |                    |
| Accelerated Technology Inc.        | •     | •     | •      | •     | •        | www.atinucleus.com |
| Lineo                              |       | •     | •      | •     | •        | www.rtxc.com       |
| ETAS                               |       | •     | •      |       |          | www.etasinc.com    |
| Green Hills Software               | •     | •     | •      | •     | •        | www.ghs.com        |
| Precise Software                   | •     | •     | •      | •     | •        | www.psti.com       |
| Snap Gear                          |       |       |        |       | •        | www.snapgear.com   |
| TASKING                            |       | •     |        |       |          | www.tasking.com    |
| U S Software                       |       | •     | •      |       | •        | www.ussw.com       |
| Wind River Systems                 | •     |       |        |       | •        | www.wrs.com        |
| Company                            | 68xxx | 68300 | MPC500 | MCORE | ColdFire | Web Address        |
| <b>Simulation Tools</b>            |       |       |        |       |          |                    |
| Wind River Systems                 | •     | •     |        | •     | •        | www.wrs.com        |
| Green Hills Software               | •     | •     | •      | •     | •        | www.ghs.com        |
| TASKING                            |       | •     |        | •     |          | www.tasking.com    |

**NETWORK AND COMMUNICATIONS PROCESSORS**  
**SOFTWARE TOOLS**  
**PowerPC ISA — Metrowerks**

| Product | Description                 | Target Support  | RTOS Support   | Board Support | Host-Target Interface  | Host Platforms        | Language Support                       | Compiler Output Formats          |
|---------|-----------------------------|---|--|---------------|--|-----------------------|--|----------------------------------|
| CWEPPC  | CodeWarrior for PowerPC ISA | MGT5100<br>MPC505,<br>MPC509,<br>MPC555,<br>MPC56x<br>MPC821,<br>MPC823,<br>MPC850,<br>MPC86x,<br>MPC8240,<br>MPC826x,<br>PPC603,<br>PPC603ei,<br>MPC7400 | QNX Neutrino; RTX from Lineo; Embedix SDK from Lineo; Precise MQX, ATI Nucleus |               | MetroTRK, CodeTAP, PowerTAP, WireTAP Run Control Interface (JTAG and BDM (8xx only), Macraigor Systems COP Raven (for MPC82xx and PPC6xx), Macraigor Systems BDM Raven (for MPC8xx, MPC5xx), Abatron BDI 2000 (5xx, 8xx) | Windows 98/2000/NT/XP | C/C++, EC++, and PowerPC ISA, Assembly | ELF/DWARF 1.0; Motorola S-Record |

**HARDWARE TOOLS**  
**Metrowerks**

| Product        | Description        | Target Board | Power Supply | Schematic | User Manual | Documentation | Interface Board |
|----------------|--------------------|--------------|--------------|-----------|-------------|---------------|-----------------|
| MPC823FADS     | MPC823 FADS Board  | •            | •            | •         | •           | •             |                 |
| MPC850SRFADS   | MPC850 FADS Board  | •            | •            | •         | •           | •             |                 |
| MPC8260ADS-PQ2 | MPC8260 ADS Board  | •            | •            | •         | •           | •             |                 |
| MPC860FADS     | MPC860 FADS Board  | •            | •            | •         | •           | •             |                 |
| MPC860TFADS    | MPC860 TFADS Board | •            | •            | •         | •           | •             |                 |

## NETWORK AND COMMUNICATIONS PROCESSORS (continued)

### SOFTWARE AND DEVELOPMENT TOOLS

#### C-PORT NETWORK PROCESSOR FAMILY DEVELOPMENT ENVIRONMENT

##### C-Ware Software Toolset (CST)

| Part Number                | Description   | Additional Information  |
|----------------------------|---|---|
| CSCC500                    | C-Ware Software Toolset annual support contract. Provides email and phone support, as well as online updates of the CST for a period of one year from date of purchase.   | Note: The CST can be downloaded from the C-Port Family support site at <a href="http://motorola.cportcorp.com/support">motorola.cportcorp.com/support</a> . |
| CSTC501W                   | C-Ware Software Toolset, web site download of <i>current</i> CST release (Windows or UNIX)  |   |
| CSTC501C                   | C-Ware Software Toolset, CD-ROM of <i>current</i> CST release for Microsoft Windows   |   |
| CSTC501D                   | C-Ware Software Toolset, CD-ROM of <i>current</i> CST release for Sun Solaris UNIX  |   |
| CSTC501X <sup>(Note)</sup> | C-Ware Software Toolset for C-Port Network Processor family, custom order (purchase order description should specify CST release number, web download or CD-ROM, and intended operating system. (For example, Microsoft Windows or Sun Solaris UNIX.) |   |

Note: Use this order number only if you want an archived CST release.

##### C-Ware Development System (CDS)

| Part Number                              | Description   | Status       |
|--|---|--------------|
| <b>Base System</b>                       |   |              |
| CDEV101A                                 | CDS Base Unit (Chassis, Power Supply, Single Board Computer)  | Available    |
| CDEV501A                                 | CDS Power Supply (additional or spare)  | Available    |
| <b>Network Processing Modules</b>        |   |              |
| CDEV201200A                              | C-5 Switch Module (C-5 NP v. D0 silicon, 200 MHz max operating frequency)   | Discontinued |
| CDEV221200A                              | C-5 Switch Module (C-5 NP v. D0 silicon, external classifier support, 200 MHz max operating frequency)  | Available    |
| <b>Physical Interface Modules (PIMs)</b> |   |              |
| CDEV301A                                 | 10/100Ethernet PIM (16 10BASE-T/100BASE-T Ethernet ports)   | Available    |
| CDEV302A                                 | Gigabit Ethernet PIM (2 ports of Gigabit Ethernet with 1000BASE-SX GBICs)   | Available    |
| CDEV304A                                 | OC-12 PIM (4 OC-12 ports with SC optical connectors)  | Available    |
| CDEV305A                                 | Combo 1 – Ethernet x OC-3 PIM (4 ports 10BASE-T/100BASE-T, 1 port Gigabit Ethernet with 1000BASE-SX GBIC, 4 ports OC-3 with MT-RJ connectors)                     | Available    |
| CDEV306A                                 | Combo 2 – Ethernet x OC-3 x OC-12 PIM (1 port Gigabit Ethernet with 1000BASE-SX GBIC, 4 ports OC-3 with MT-RJ connectors, 1 port OC-12 with SC optical connector) | Available    |

Note: Hardware Reference Designs for Switch Modules and PIMs are available on the C-Port Family support site at [motorola.cportcorp.com/support](http://motorola.cportcorp.com/support).



*NETWORK AND COMMUNICATIONS PROCESSORS (continued)*  
*SOFTWARE AND DEVELOPMENT SYSTEMS (continued)*  
**MPC8xx and MPC82xx — Metrowerks**

| Product         | Description                | RTOS Support  | Flex Cable | Serial Cable | Integrated Development Environment | CD ROM | User Manuals | Power Supply | Host Platforms        | In-Circuit Simulator/ Programmer (Board) |
|-----------------|----------------------------|---|------------|--------------|------------------------------------|--------|--------------|--------------|-----------------------|--|
| CWDEVSY823FADS  | MPC823 Development System  | QNX Neutrino; RTXC from Lineo; Embedix SDK from Lineo, Precise MQX, ATI Nucleus | —          | •            | 4.2.1                              | •      | •            | •            | Windows 95/98/2000/NT | —  |
| CWDEVSY850FADS  | MPC850 Development System  | QNX Neutrino; RTXC from Lineo; Embedix SDK from Lineo, Precise MQX, ATI Nucleus | —          | •            | 4.2.1                              | •      | •            | •            | Windows 95/98/2000/NT | —  |
| CWDEVSY860FADS  | MPC860 Development System  | QNX Neutrino; RTXC from Lineo; Embedix SDK from Lineo, Precise MQX, ATI Nucleus | —          | •            | 4.2.1                              | •      | •            | •            | Windows 95/98/2000/NT | —  |
| CWDEVSY860TFADS | MPC860T Development System | QNX Neutrino; RTXC from Lineo; Embedix SDK from Lineo, Precise MQX, ATI Nucleus | —          | •            | 4.2.1                              | •      | •            | •            | Windows 95/98/2000/NT | —  |
| CWDEVSY8260AMC  | MPC8260 Development System | QNX Neutrino; RTXC from Lineo; Embedix SDK from Lineo, Precise MQX, ATI Nucleus | —          | •            | 4.2.1                              | •      | •            | •            | Windows 95/98/2000/NT | —  |

*CABLES AND HOST-TARGET INTERFACES*  
**Metrowerks**

| Product        | Description   | Target Support | Connection Device | Power Supply |
|----------------|---|----------------|-------------------|--------------|
| CWWIRETAPBDM   | AMC's WireTAP Run Control Interface (BDM)                     | •              | •                 | •            |
| CWWIRETAPJTAG  | AMC's WireTAP Run Control Interface (MPC6xx, 7xx, 82xx, 74xx) | •              | •                 | •            |
| CWPOWERTAPJTAG | PowerTAP Pro for JTAG, Hardware Only                          | •              | •                 | •            |
| CWPTAPPROJCWW  | PowerTAP Pro for JTAG with CodeWarrior for Windows            | •              | •                 | •            |
| CWPTAPPROJMW   | PowerTAP Pro for JTAG with MWX-ICE Windows                    | •              | •                 | •            |
| CWPTAPPROJMS   | PowerTAP Pro for JTAG with MWX-ICE Solaris                    | •              | •                 | •            |
| CWPOWERTAPDPI  | PowerTAP Pro for DPI, Hardware Only                           | •              | •                 | •            |
| CWPTAPPRODCWW  | PowerTAP Pro for DPI, with CodeWarrior for Windows            | •              | •                 | •            |
| CWPTAPPRODMW   | PowerTAP Pro for DPI with MWX-ICE Windows                     | •              | •                 | •            |
| CWPTAPPRODMS   | PowerTAP Pro for DPI with MWX-ICE Solaris                     | •              | •                 | •            |

## NETWORK AND COMMUNICATIONS PROCESSORS

NETWORK AND COMMUNICATIONS PROCESSORS (continued)

SOFTWARE AND DEVELOPMENT SYSTEMS (continued)

### THIRD PARTY TOOLS

| Third Party Vendor              | Website                       | Families Supported          | Embedded Operating Systems | Compilers and Code Generation Tools | Software Debuggers | Coverification Tools and Simulation Models | Emulators and Diagnostic Tools | Logic Analyzers | Boards and Systems | Support Chips | Drivers / Protocol Stacks |
|---------------------------------|-------------------------------|-----------------------------|----------------------------|-------------------------------------|--------------------|--|--------------------------------|-----------------|--------------------|---------------|---------------------------|
| Abatron                         | www.abatron.ch                | MPC8xx, MPC82xx, G2, G3, G4 |                            |                                     |                    |  | •                              |                 |                    |               |                           |
| Accelerated Technology          | www.acceleratedtechnology.com | MPC8xx, MPC82xx, G2, G3     | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| Agilent Technologies            | www.agilent.com               | MPC8xx, MPC82xx, G2, G3, G4 |                            |                                     |                    |  | •                              | •               |                    |               |                           |
| Aisys                           | www.aisysinc.com              | MPC8xx, MPC82xx, G2         |                            | •                                   |                    |  |                                |                 |                    |               | •                         |
| Apogee Software                 | www.apogee.com                | G2, G3, G4                  |                            | •                                   |                    |  |                                |                 |                    |               |                           |
| Artis Microsystems              | www.artismicro.com            | G2, G4                      |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| CMX Systems                     | www.cmx.com                   | MPC8xx, MPC82xx, G2, G3, G4 | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| Cogent Computer Systems         | www.cogcomp.com               | MPC82xx, G2, G3             |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Corelis                         | www.corelis.com               | G2, G3, G4                  |                            |                                     | •                  |  | •                              |                 |                    |               |                           |
| Data Connection                 | www.dataconnection.com        | MPC8xx, MPC82xx             |                            |                                     |                    |  |                                |                 |                    |               | •                         |
| DY 4 Systems                    | www.dy4.com                   | G2, G3, G4                  |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Embedded Planet                 | www.embeddedplanet.com        | MPC8xx, MPC82xx             |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| EmuTec                          | www.emutec.com                | MPC8xx, MPC82xx, G2         |                            |                                     |                    |  | •                              |                 |                    |               |                           |
| Express Logic                   | www.expresslogic.com          | MPC8xx, MPC82xx, G2, G3     | •                          |                                     |                    |  |                                |                 |                    |               |                           |
| Force Computers                 | www.forcecomputers.com        | MPC8xx, MPC82xx, G3, G4     |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| GDA Technologies                | www.gdatech.com               | MPC8xx, MPC82xx, G4         |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Green Hills Software            | www.ghs.com                   | MPC8xx, MPC82xx, G2, G3, G4 | •                          | •                                   | •                  |  | •                              |                 |                    |               |                           |
| Hughes Network Systems          | www.hns.com                   | MPC8xx                      |                            |                                     |                    |  |                                |                 |                    |               | •                         |
| International Test Technologies | www.intertesttech.com         | G2, G3                      |                            |                                     |                    |  | •                              |                 |                    |               |                           |
| Jungo                           | www.jungo.com                 | MC8xx                       |                            |                                     |                    |  |                                |                 |                    |               | •                         |
| Kadak                           | www.kadak.com                 | MPC8xx, MPC82xx, G2, G3, G4 | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| Lauterbach                      | www.lauterbach.com            | MPC8xx, MPC82xx, G2, G3     |                            |                                     | •                  |  | •                              |                 |                    |               |                           |
| LinuxWorks                      | www.linuxworks.com            | MPC8xx, MPC82xx, G2, G3, G4 | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| MAI Logic                       | www.mai.com                   | G2, G3, G4                  |                            |                                     |                    |  |                                |                 | •                  | •             |                           |
| Macraigor Systems               | www.macraigor.com             | MPC8xx, MPC82xx, G2, G3, G4 |                            |                                     | •                  |  | •                              |                 |                    |               |                           |
| Marvell Technology              | www.marvell.com               | G2, G3, G4                  |                            |                                     |                    |  |                                |                 | •                  | •             |                           |
| Mentor Graphics                 | www.mentor.com                | MPC8xx, MPC82xx, G2, G3     | •                          | •                                   | •                  | •  |                                |                 |                    |               |                           |
| MetaWare                        | www.metaware.com              | MPC8xx, MPC82xx, G2, G3, G4 |                            | •                                   | •                  |  |                                |                 |                    |               |                           |
| Metrowerks                      | www.metrowerks.com            | MPC8xx, MPC82xx, G2, G3, G4 |                            | •                                   | •                  |  |                                |                 | •                  |               |                           |

### THIRD PARTY TOOLS (continued)

| Third Party Vendor            | Website                  | Families Supported          | Embedded Operating Systems | Compilers and Code Generation Tools | Software Debuggers | Coverification Tools and Simulation Models | Emulators and Diagnostic Tools | Logic Analyzers | Boards and Systems | Support Chips | Drivers / Protocol Stacks |
|-------------------------------|--------------------------|-----------------------------|----------------------------|-------------------------------------|--------------------|--|--------------------------------|-----------------|--------------------|---------------|---------------------------|
| MicroAPL                      | www.microapl.co.uk       | G2, G3, G4                  |                            | •                                   |                    |  |                                |                 |                    |               |                           |
| Micro Digital                 | www.smxinfo.com          | MPC8xx, MPC82xx, G2, G3     | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| MicroWare                     | www.microware.com        | MPC8xx, MPC82xx, G2, G3     | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| MontaVista Software           | www.mvista.com           | MPC8xx, MPC82xx, G2, G3, G4 | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| Motorola Computer Group       | mcg.motorola.com         | G2, G3, G4                  |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Motorola SPS                  | www.motorola.com/powerpc | MPC8xx, MPC82xx, G2, G3, G4 |                            |                                     |                    | •  |                                |                 | •                  | •             |                           |
| MPI Software                  | www.mpi-softtech.com     | G3, G4                      |                            | •                                   |                    |  |                                |                 |                    |               |                           |
| Netplane                      | www.netplane.com         | MPC8xx                      |                            |                                     |                    |  |                                |                 |                    |               | •                         |
| OnCore Systems                | www.oncoresystems.com    | MPC82xx, G2, G3             | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| OSE Systems                   | www.ose.com              | MPC8xx, MPC82xx, G2, G3, G4 | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| Pacific-Sierra Research       | www.psrv.com             | G4                          |                            | •                                   |                    |  |                                |                 |                    |               |                           |
| PLX Technology                | www.plxtech.com          | MPC8xx, G2, G3, G4          |                            |                                     |                    |  |                                |                 | •                  | •             |                           |
| Precise Software Technologies | www.psti.com             | MPC8xx, MPC82xx, G2, G3, G4 | •                          |                                     | •                  |  |                                |                 |                    |               |                           |
| PrimeLayer                    | www.primelayer.com       | MPC8xx, MPC82xx             |                            |                                     |                    |  |                                |                 |                    |               | •                         |
| QNX Software Systems          | www.qnx.com              | MPC8xx, MPC82xx, G2, G3, G4 | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| Radstone Technology           | www.radstone.com         | G2, G3, G4                  |                            |                                     |                    |  |                                |                 | •                  |               |                           |
| Red Hat                       | www.redhat.com           | MPC8xx, MPC82xx, G2, G3, G4 | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| Simpod                        | www.simpod.com           | MPC8xx, MPC82xx, G2, G3, G4 |                            |                                     |                    | •  |                                |                 |                    |               |                           |
| Sophia Systems                | www.sophia.com           | MPC8xx, MPC82xx, G2, G3     |                            |                                     | •                  |  | •                              |                 |                    |               |                           |
| Summit Design                 | www.summit-design.com    | MPC8xx, MPC82xx, G2, G3, G4 |                            |                                     |                    | •  |                                |                 |                    |               |                           |
| Sun                           | www.sun.com/chorusos     | MPC8xx, MPC82xx, G2, G3, G4 | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| Synopsys                      | www.synopsys.com         | MPC8xx, MPC82xx, G2, G3, G4 |                            |                                     |                    | •  |                                |                 |                    |               |                           |
| TASKING                       | www.tasking.com          | MPC8xx, MPC82xx, G2, G3     |                            | •                                   | •                  |  |                                |                 |                    |               |                           |
| Tektronix                     | www.tektronix.com        | MPC8xx, MPC82xx, G2, G3, G4 |                            |                                     |                    |  |                                | •               |                    |               |                           |
| Tundra Semiconductor          | www.tundra.com           | MPC8xx, MPC82xx, G2, G3, G4 |                            |                                     |                    |  |                                |                 | •                  | •             |                           |
| US Software                   | www.ussw.com             | MPC8xx, MPC82xx             | •                          |                                     |                    |  |                                |                 |                    |               | •                         |
| Wasabi Systems                | www.wasabisystems.com    | G2, G3, G4                  | •                          | •                                   | •                  |  |                                |                 |                    |               |                           |
| Wind River Systems            | www.windriver.com        | MPC8xx, MPC82xx, G2, G3, G4 | •                          | •                                   | •                  |  | •                              |                 | •                  |               | •                         |

## NETWORK AND COMMUNICATIONS PROCESSORS SOFTWARE TOOLS Network Processor Alliances

| Alliance                             | Description   | Additional Information   |
|--------------------------------------|---|--|
| <b>SOFTWARE</b>                      |   |  |
| Wind River Systems                   | Tornado for Managed Switches (TMS) 2.0 integration with the C-Port Family development environment. C-5 Switch Support Package (C-5 SSP) available from Wind River Systems.  | <a href="http://www.windriver.com/products/html/manswitch.html">www.windriver.com/products/html/manswitch.html</a>                             |
| <b>COPROCESSORS</b>                  |   |  |
| Corrent™                             | 2Gbps+IPSec 7120 (Hurricane) security coprocessor interfacing with the C-Port C-5e NP, enabling fast path security solutions such as VPN.   | <a href="http://www.corrent.com">www.corrent.com</a>   |
| Cypress®                             | Network Database Search Engines (CYNSE70032) and Cypress coprocessor (CYNCP80192) connecting via SRAM ZBT to the C-Port C-5 NP, delivering higher levels of search performance and throughput for mission critical applications.                                      | <a href="http://www.cypress.com/products">www.cypress.com/products</a>   |
| PMC-Sierra™                          | PM2329 ClassiP™ high performance, Layer 2–7, content processor interfacing with the C-Port C-5 NP, providing OC-48 rate classification. Software Development Kit available from PMC-Sierra.   | <a href="http://www.pmcsierra.com/products/details/pm2329">www.pmcsierra.com/products/details/pm2329</a>                                       |
| Solidum                              | PAX.port™ 2500 classification processor interfacing with the C-Port C-5e NP, enabling multi-Gigabit processing (up to 2.5 Gbps).  | <a href="http://www.solidum.com">www.solidum.com</a>   |
| <b>FABRICS</b>                       |   |  |
| IBM™                                 | PowerPRS (Packet Routing Switch) Fabric connecting through a UDASL interface to the C-Port C-5 NP, plus new versions of IBM PowerPRS connecting through CSIX L1 to the C-Port C-5e NP.  | <a href="http://www-3.ibm.com/chips/products/wired/products/prsmmodules.html">www-3.ibm.com/chips/products/wired/products/prsmmodules.html</a> |
| <b>DESIGN SERVICES AND SOLUTIONS</b> |   |  |
| HCL                                  | Expert design services for the C-Port Network Processor Family, including hardware design and embedded, networking and telecom software development.  | <a href="http://www.hcltechnologies.com">www.hcltechnologies.com</a>   |
| Motorola® Computer Group             | System solutions based on the C-Port Network Processor Family, including networking line cards using C-Port C-5 NPs inside the Packet Transport Platform.   | <a href="http://mcg.motorola.com">mcg.motorola.com</a>   |
| Motorola India Electronics (MIEL)    | Extensive experience in developing application software for the C-Port Network Processor Family and has developed key reference applications for the C-Ware Software Toolset (CST), such as aal2Switch, volpToVoAtmSwitch, switch Router, and ATM Traffic Management. | 1-512-996-4693   |

## ***NOTES***

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## **HOW TO REACH US:**

### **USA/EUROPE/LOCATIONS NOT LISTED:**

Motorola Literature Distribution  
P.O. Box 5405  
Denver, Colorado 80217  
1-800-521-6274 or 480-768-2130

### **JAPAN:**

Motorola Japan Ltd.  
SPS, Technical Information Center  
3-20-1, Minami-Azabu, Minato-ku  
Tokyo 106-8573, Japan  
81-3-3440-3569

### **ASIA/PACIFIC:**

Motorola Semiconductors H.K. Ltd.  
Silicon Harbour Centre  
2 Dai King Street  
Tai Po Industrial Estate  
Tai Po, N.T., Hong Kong  
852-26668334

### **HOME PAGE:**

<http://motorola.com/semiconductors>



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