LAWICEL

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Best viewed with
at least 800x600

Welcome to LAWICEL!

If you want to get in touch with us and have some questions or even looking for something special concerning embedded systems, Siemens **C505C/C515C**, Siemens **C16x**, **CAN** don't hesitate to contact us and we will get back as soon as possible.

Don't forget to check the latest news!

Last updated on the 23:rd of September 1998

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HARDWARE PRODUCTS

For more information and photo - Click on the corresponding product.

PC Products

Part No.	Product	Description	
430	PPCAN	Parallel Port Adapter with CAN 2.0B	

Embedded Products

Part No.	Product	Description	
400	C515C-BBE	Single Board Computer with Siemens C515C	
401	MB-01	Mother Board for C515C-BBE	
402	C505C-BBF	Single Board Computer with Siemens C505C	**Q4/99**
403	CANDIP	Single DIP Computer with Atmel AT90S8515	**New**
420	SDIO-100	Smart Distributed I/O with CAN	

SOFTWARE PRODUCTS

For more information and photo - Click on the corresponding product.

EMBEDDED PASCAL

Part No.	Product	Description	
440	EP-52	Embedded Pascal for 8051/52	
441	EP-Z180	Embedded Pascal for Z180	
442	EP-AVR	Embedded Pascal for Atmel AVR	**New**

MISCELLANEOUS PRODUCTS

For more information and photo - Click on the corresponding product.

STARTER KITS

Part No.	Product	Description
403	CAN-ST1	CAN Starter Kit (2 Nodes)
404	CAN-ST2	CAN Starter Kit (2 Nodes + CAN monitor/logger)

Last updated on the 5:Th of November 1999

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MECEL PPCAN

Parallel Port adapter for CAN

PPCAN is a tool that gives you access to the CAN bus from your PC. PPCAN stands for Parallel Port adapter for CAN communication. It is easy to connect to your portable or stationary PC. Because it connects to a standard parallel port you will always find a computer that can be used with it. You do not have to bring a computer with you on your trip. Bring a PPCAN and a floppy disk and borrow a computer on site. Its small size allows you to carry it in your pocket. Not only is it small and flexible. It is also the only one of its kind that contains a full-CAN controller. With this tool, you can do everything CAN related. Using the tool is very simple. Since DOS is present on most computers today, our tool comes with a handy DOS based program, PPTrace, for interacting with the CAN bus. It makes viewing activities on the bus and sending messages to other CAN units. If you require more advanced control over your CAN implementation you can get this by writing some small amount of C/C++, Visual Basic, Delphi or LabView. PPCAN ships with software device drivers for both DOS and Windows. These drivers have a simple but very powerfull application program interface (API).

For more information feel free to contact us.

Last updated on the 3:d of March 1998

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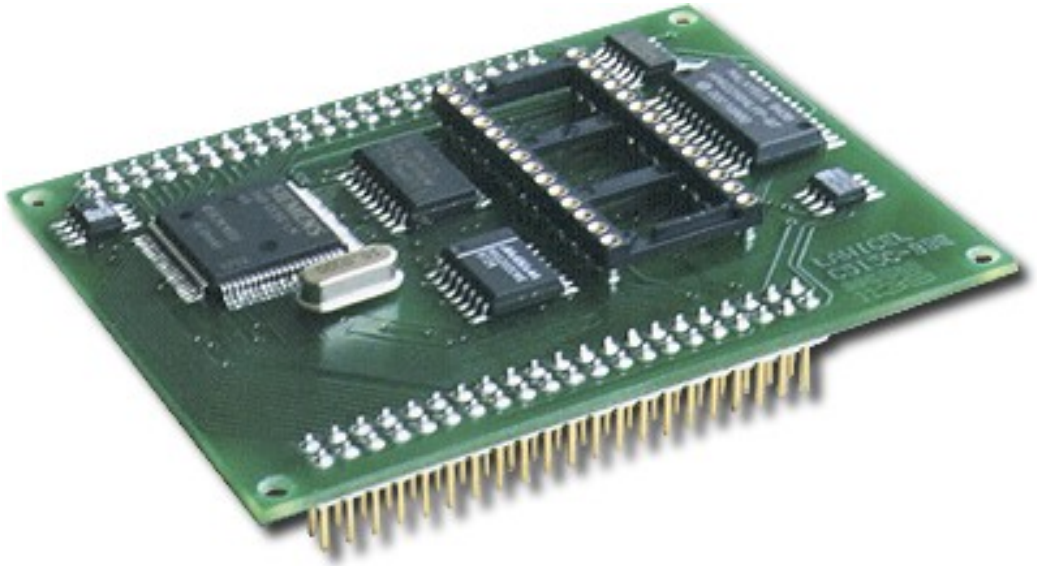
Single Board Computer with Controller Area Network (CAN)

LAWICEL C515C-BBE



Erleichtern Sie sich Ihre ersten Schritte in die CAN Technologie mit diesem Einplatinenrechner. Durch den Einsatz von Standard-Komponenten in Verbindung mit Beispielprogrammen fällt der Einstieg besonders leicht. Optional ist für diesen Rechner eine Basisplatine erhältlich. Weitere Informationen in deutscher Sprache erhalten Sie bei der Firma MicroControl.

Download complete information on the board in a pdf file.

DESCRIPTION

The C515C-BBE is a Single Board Computer with the Siemens® 8-bit CMOS microcontroller type SAB C515C-8R. The C515C is an enhanced, upgraded version of the 80C515A 8-bit microcontroller which additionally provides a full CAN interface, a SPI compatible synchronous interface, extended power save provisions, additional on-chip RAM, two new external interrupts and a maximum external clock rate of 10 MHz.

The Baby board module is in a small credit card size (80x60mm / 3,15" x 2,23") with all pins from the microcontroller extended to two 2x21 pin rows with standard width

FEATURES

- SBC in credit card-size/baby board (80x60mm / 3,15"x2,23") achieved through SMD technology on both sides.
- Fitted with Siemens SAB C515C-8R, an 80C51 compatible microcontroller.
- Microcontroller pins extended to standard width (2.54mm / 0.1") aligned along the board edges, allowing the baby board to be plugged into any target application like a "piggy back board".
- 32KB EPROM (DIL28) 0000H-7FFFH.
- 32KB RAM (SMD) 8000H-FFFFH.
- RAM works as both code- and data space (i.e von-Neumann), which is perfect for easily and quickly testing software.
- 10-bit ADC with 8 multiplexed inputs.
- RS-232 interface (MAX202).
- SSC sync. serial interface (SPI compatible).
- CAN interface with the 82C250 transceiver from Philips®, which enables speed up to 1Mb and is fully compatible with the *ISO/DIS*

(2,54mm/0,1") on the long size of the board allowing it to be plugged into a target application like a "piggy back board".

11898 standard.

- Power supply monitor with RESET (MAX702).
- Monitor software in assembler included.
- Included are sample programs in C that show how the on board hardware works.
- Many resources to information on the Internet are included.
- Standard circuits on the board, no PLD/PAL etc. that has to be programmed.
- Full schematics for the board in the user manual.
- Requires a single low voltage power supply 5V/100mA.
- Operates within a standard temperature range of 0 to 70 degrees C.

Download complete information on the board in a pdf file.

For pricing and more information feel free to contact us (sales@lawicel.com).

Last updated on the 20:Th of October 1998

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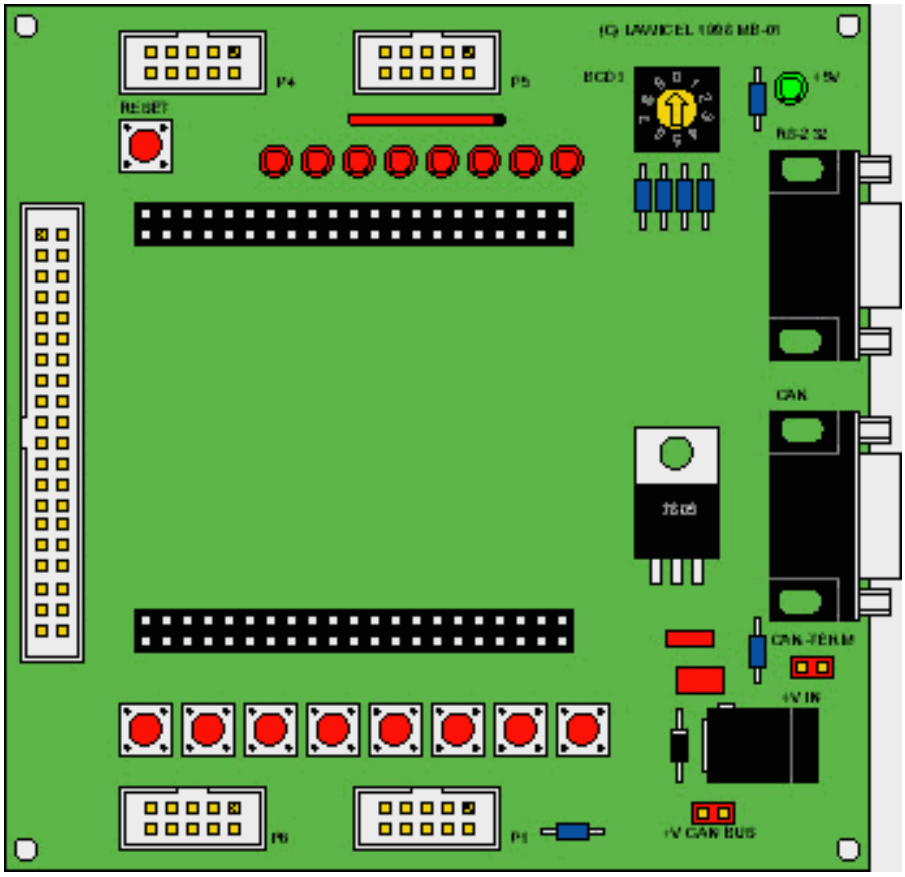
Mother board for 8051 derivatives SBC

LAWICEL MB-01



Download complete information on the board in a pdf file.

DESCRIPTION

The MB-01 is a Mother board for LAWICEL Single Board Computers and is specially made for 8051 derivatives. The board has push buttons to easily simulate inputs and red light diodes for simulating outputs.

All ports and important signals from the 8051 derivative are on header connectors, which makes it easy to connect external boards or peripherals, such as FLASH memory, EEPROM, RTC, LCD display, keyboards, motor controls etc.

Further, the board has two DB9 connectors for the RS-232 communication port and the CAN

FEATURES

- Mother board size: (107x112mm / 4,2"x4,4").
- DB9 female connector for RS-232.
- DB9 male connector for CAN (CiA Standard).
- 10 pin header connector for port P1/+5V/Gnd.
- 10 pin header connector for port P4/+5V/Gnd.
- 10 pin header connector for port P5/+5V/Gnd.
- 10 pin header connector for port P6/+5V/Gnd.
- 40 pin header connector for ADDRESS / DATA / CONTROL / +5V / Gnd signals.
- 8 red light diodes for output connected on P5. Port P5 could still be used both for input or output on the 10 pin header connector without removing the leds.
- 1 green light diode indicating +5V OK.
- 8 push buttons for input connected on P1. Port P1 could still be used both for input or output on the 10 pin header connector without removing the push buttons.

(Controller Area Network) port according to the CiA standard. There are also 2 jumpers for easy CAN termination and enabling power supply onto the DB9 CAN connector according to the CiA standard, which makes it possible to supply other CAN nodes with only one power supply.

Finally the board is equipped with a BCD switch, that could be used for e.g. node address in a Controller Area Network, RS-232 speed etc.

The Mother board module is in a medium size (107x112mm / 4,2"x4,4") suited to be used with Phoenix Contact® card holders for 35mm rail.

- RESET push button.
- BCD switch connected on 4 lower bits of P6.
- CAN termination resistor jumper.
- +V enable jumper on CAN bus.
- Included are sample programs in C that show how the on board hardware works.
- Standard circuits on the board, no PLD/PAL etc. that has to be programmed.
- Full schematics for the board in the user manual.
- Requires a single voltage power supply 9-24V/150mA on a standard 2.1mm pin or supplied through the DB9 CAN connector. The power input is diode protected.
- Operates within a standard temperature range of 0 to 70 degrees C.

Download complete information on the board in a pdf file.

For pricing and more information feel free to contact us (sales@lawicel.com).

Last updated on the 7:Th of August 1998

| Return to LAWICEL |

Matchbox size Single Board Computer with Controller Area Network (CAN), FLASH, EEPROM, RAM etc.

LAWICEL C505C-BBF

Availible in October / November -99!

Download preliminary information on the board in a pdf file.

See the C505C-BBF at INTERKAMA in Düsseldorf (18/10-23/10 -99)

MicroControl - Hall 8 / Stand 8G27-1

Dieser Einplatinenrechner in Größe einer Streichholzschachtel
eignet sich durch die reichhaltige Speicherausstattung auch
für große CAN Projekte. Die Lieferung erfolgt mit Beispiel Programmen in C.
Weitere Informationen in deutscher Sprache
erhalten Sie bei der Firma MicroControl.

PRELIMINARY INFORMATION

DESCRIPTION

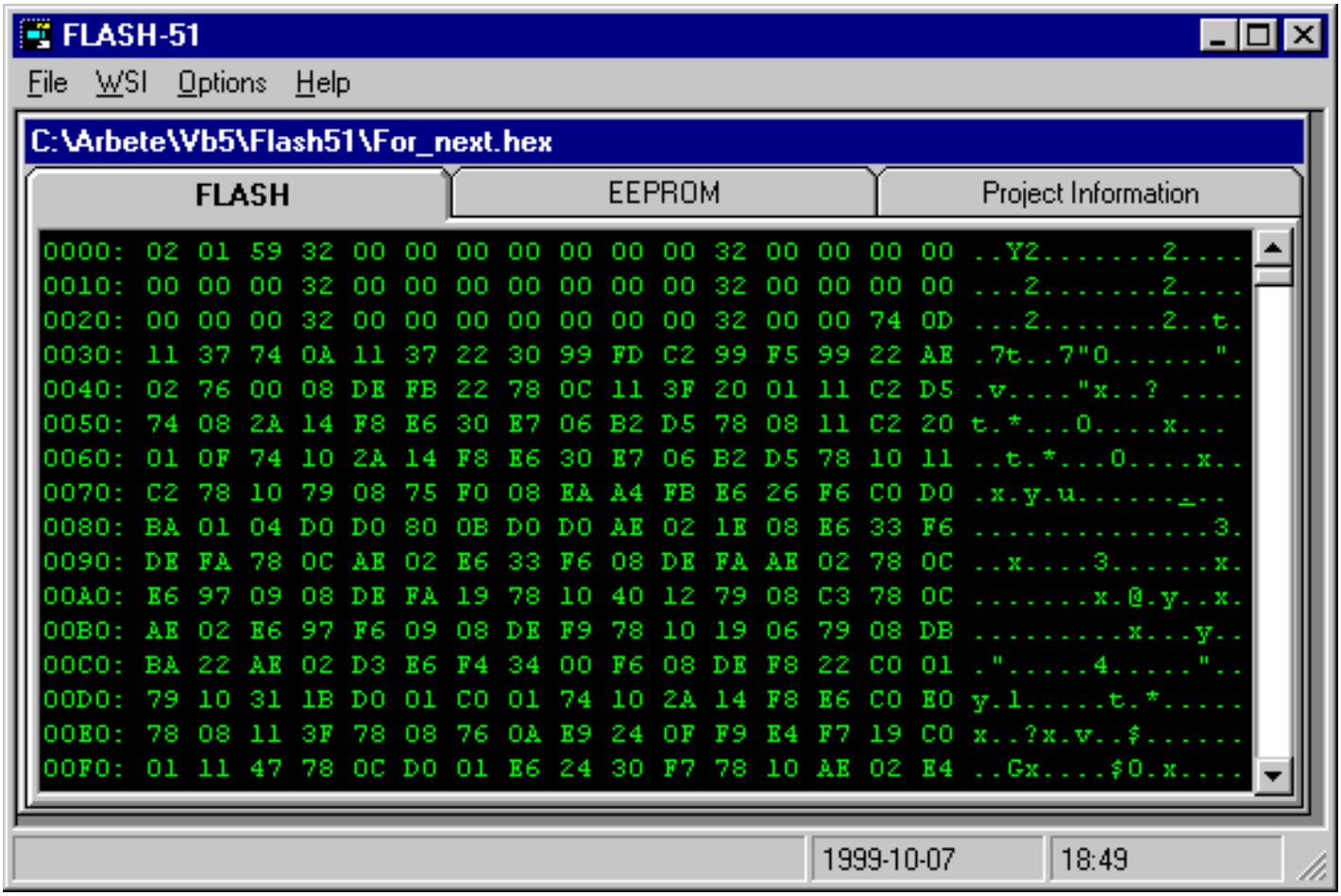
The C505C-BBF is a Single Board Computer with the Siemens® 8-bit CMOS microcontroller type SAB C505CA. The C505CA is an 8-bit microcontroller which additionally provides a full CAN interface, additional on-chip RAM, 8 channels of 10bit ADC and a maximum external clock rate of 20 MHz.

The Baby board module is in a small matchbox size (58x38mm / 2,3" x 1,5") with all pins from the microcontroller and PLD extended to a line of pins arround the board with standard pitch (2,54mm/0,1") allowing it to be plugged into a target application like a "piggy back board".

FEATURES

- SBC in matchbox size (58x38mm / 2,3" x 1,5") achieved through SMD technology and 4 layers for good EMC.
- Fitted with Siemens SAB C505CA, an 80C51 compatible microcontroller.
- Microcontroller pins extended to standard pitch (2.54mm / 0.1") aligned along the board edges, allowing the baby board to be plugged into any target application like a "piggy back board".
- 128KB FLASH.
- 2,5KB RAM (plus as option an extra 32k SRAM).
- 8K BOOT EEPROM.
- 24K PARAMETER EEPROM.
- 10-bit ADC with 8 multiplexed inputs.
- RS-232 interface (MAX202).
- CAN interface with the 82C250 transceiver from Philips®, which enables speed up to 1Mb and is fully compatible with the *ISO/DIS 11898* standard.
- Power supply monitor with RESET.
- Monitor software in assembler included.
- Included are sample programs in C that show how the on board hardware works.
- Many resources to information on the Internet are included.
- Requires a single low voltage power supply 5V/<100mA.
- Operates within a standard temperature range of 0 to 70 degrees C.

Download preliminary information on the board in a pdf file.



Picture above shows the programming tool, which programs FLASH via RS-232 without removing the board from the system (true ISP programming).

Picture above shows the C505C-BBF close to a matchbox.

For pricing and scheduled delivery feel free to contact us (sales@lawicel.com).

Last updated on the 20:th of October 1999

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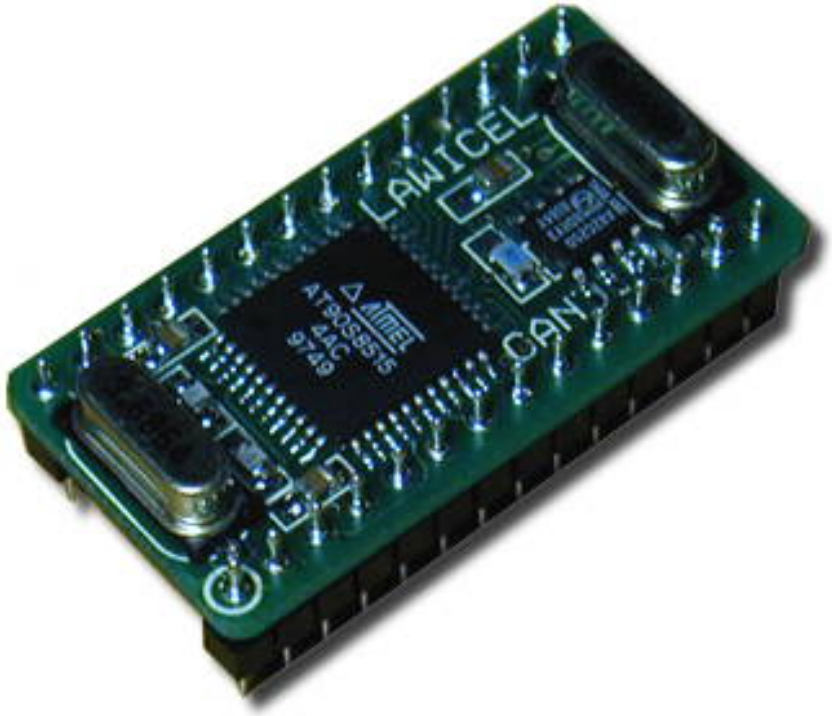
CANDIP

How easy and inexpensive can CAN be?



*The picture above shows the **CANDIP**, which has the size of a **DIP28**. The **CANDIP** is equipped with an Atmel AVR microcontroller type **AT90S8515** and the **CAN** controller **SJA1000** from Philips.*

What is CANDIP?

CANDIP is an embedded microcontroller with **CAN (Controller Area Network)**, where you as a user can make a quick route to new products, maybe you just need some digital I/O connected to CAN or a a smart node with a PID controlled motor etc. You can see the CANDIP as a very small "Single Board Computer" with the possibility to perform almost 4MIPS.

CANDIP isn't a "ready to use with software unit" which has a very narrow application field, such as a CANopen SLIO or a homebrewed Protocol, it is completely scalable with your own software (written in C, Basic, Forth, Pascal or any other compiler that supports the AVR AT90S8515). We can of course pre-program it to behave as you like incase you do not have the time or knowledge.

CANDIP also has on-board RS-232 transceivers and a RESET circuit that generates a proper reset after power up and will also halt the microcontroller if the voltage drops below 4.7V. Furthermore it has a standard ISO-11898 CAN transceiver on board, but could also use an external CAN transceiver with your own hardware with e.g. OPTO isolation.

CANDIP will get you a quick start where you do not have to start from scratch and debug hardware while trying to get your application running. We also provide simple routines for testing the CAN controller by sending and receiving frames. Today we provide samples in ImageCraft ICCAVR and MCS Electronics BASCOM-AVR. It is also possible to buy a full working CANlib for the SJA1000, written in ICCAVR with full source code.

CANDIP has a few I/O connections on board that could be used for general I/O, but it can easily be expanded to a real advanced and sophisticated system through the SPI port. Via the SPI port you could add hardware such as digital I/O, ADC, DAC, RTC, EEPROM, LCD and much more. You can also attach I2C devices and control them by software controlled I2C. There is one external Interrupt line available, the other on the AT90S8515 (INT0) is used for the CAN controller.

CANDIP support In-System-Programming (ISP), which means you can program the software without removing it from the socket. Just use your favorite AVR ISP programmer or buy one from us. We sell the AVRISP and AVRISP-GOLD from KANDA Systems. So we can offer a complete solution and get you started in just a few hours.

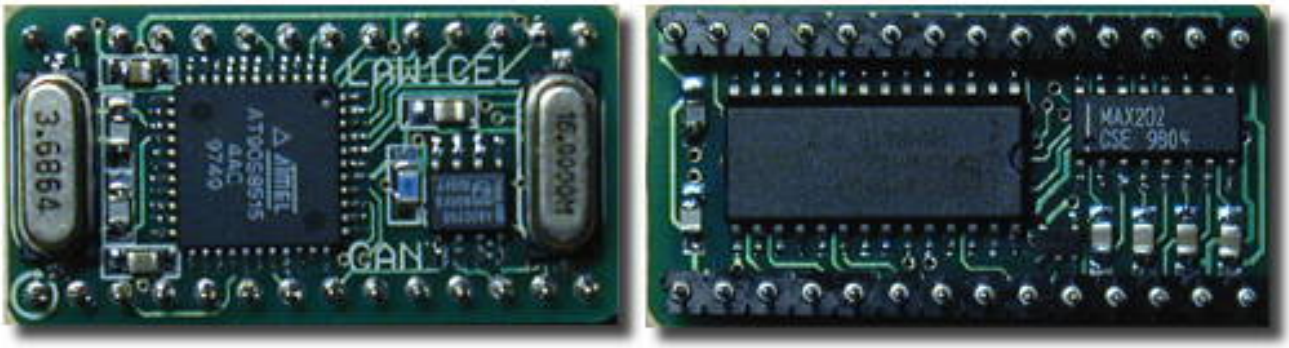
What can I do with CANDIP?

With CANDIP it is possible to make many things, such as:

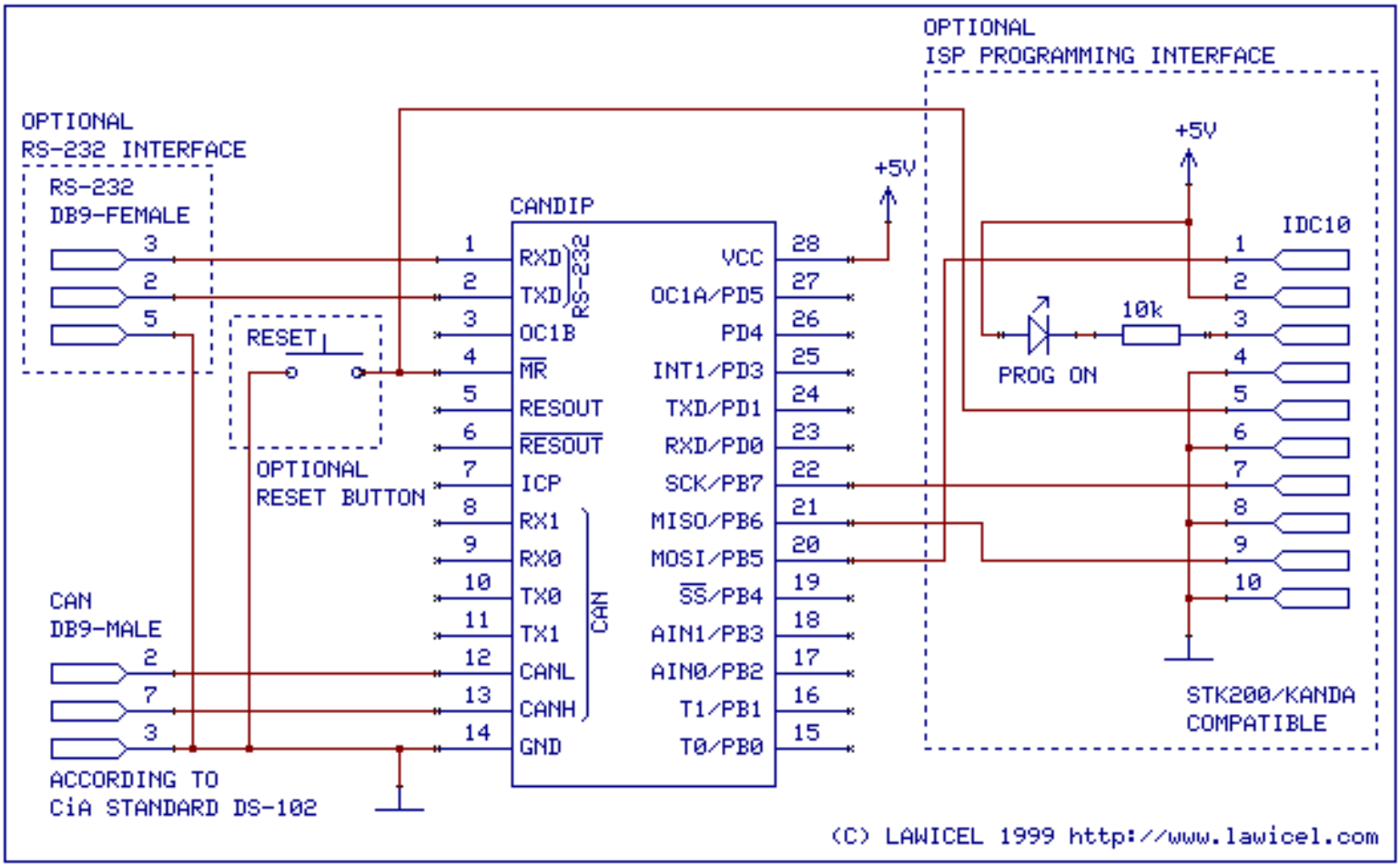
- CAN SLIO with your own protocol or with e.g. CANopen, DeviceNet, SDS, CAN Kingdom etc.
- Smart nodes with PID algorithms for controlling e.g. temperature, motors or valves.
- Data Acquisition via CAN. Add your favorite ADC and collect data.
- Home Automation. Build smart nodes for turning ON/OFF lights, burglar systems etc.
- Add CAN simple in an existing system via e.g. SPI, RS-232 or your own way.
- Education. CANDIP offers a very low cost to learn CAN, we have many starter kits.
- If you have a customer who want to see a prototype or even a ready product next week.
- Decentralized smart nodes for e.g. Robots.
- CAN monitor in an existing system. Add some Leds and you could monitor e.g vales etc.

Features

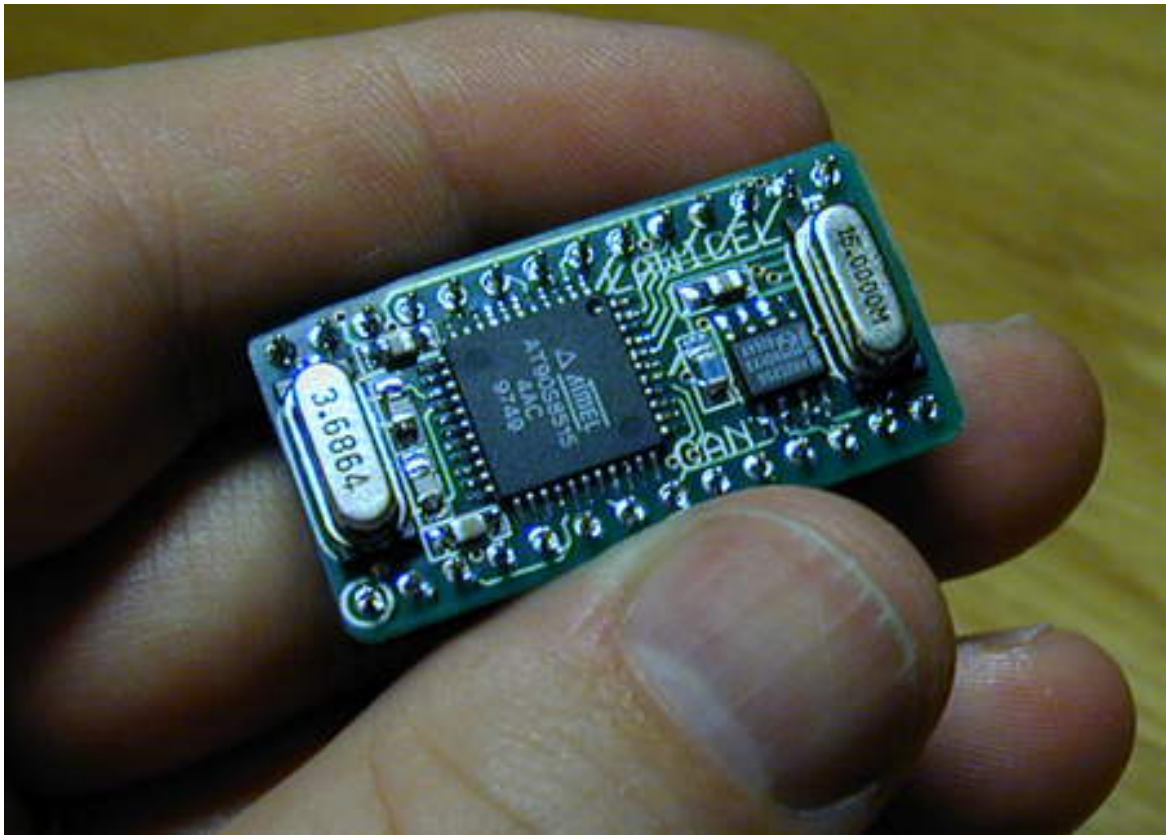
- Standard 28 pin DIP board with 0.1" pins, so use a standard DIP28 carrier.
- Atmel AVR type AT90S8515 working at 3.6864Mhz (other crystals on request).
- 8k user FLASH, 512bytes user RAM and 512bytes user EEPROM.
- SPI port for expansion.
- One Interrupt line availible for user functions.
- SJA1000 CAN controller working at 16Mhz, which supports CAN2.0B.
- 82C250 High Speed CAN transceiver 1Mbit (ISO-11898).
- CAN controller can be interrupt driven.
- MAX202 RS-232 transceiver which together with the AVR can send/receive up to 115kbit.
- MAX825 Reset circuit, the normal RESET and inverted RESET is on external pins.
- No interpreted software, it's programmed with compilers.
- Posibilities to implement higher level protocols, such as CANopen, DeviceNet etc.



*The picture above shows the **CANDIP** board (both sides) mounted with an **AT90S8515**, MAX202, MAX825, SJA1000 and a 82C250 CAN transceiver. You only need to apply power and connectors of your choice and you are up running. No hassle trouble shooting hardware while learning CAN.*



*The picture above shows a block diagram of **CANDIP** and external components needed. Dashed blocks are optional connections depending on your application. The **CANDIP** supports In-System-Programming (ISP) through the SPI port and it supports the STK200 programmer from Atmel/Kanda (provided by us too if you like).*



*Just see how small the **CANDIP** is. **CANDIP** is perfect for small systems such as Home Automation, small and effective CAN nodes with e.g. digital I/O or Analog I/O, use it for expanding your existing embedded system through the SPI or RS-232 channel. It can also be used for simple test and learning CAN. The **CANDIP** is easy to expand into a large system through the SPI port or via software controlled I2C*

This page is under construction and more information will come here shortly such as PDF files and application notes. There will also soon be an "activity board" where you easy can plug in CANDIP and have I/O such as LEDs and Pushbuttons plus Power Supply and DB9 connectors for CAN and RS-232. Let us know if you need more information such as availability and pricing.

We have World Wide Dealers, just ask us and we send information to your nearest dealer.

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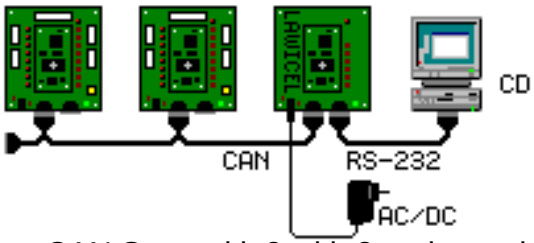
| Main |

Last updated on the 11:th of November 1999

LOW Cost CAN Starter Kits with an 8051 derivative MC.

LAWICEL CAN STARTER KITS

Picture showing CAN Starter kit 1 with 2 nodes, cables, manuals & CD-ROM.



Animated graphics showing CAN Starter kit 2 with 3 nodes, cables, manuals & CD-ROM.
Demonstraing how easy it is to get started. Sample programs showing distributed I/O.

We have developed a CAN starter kit based on the C515C Microcontroller from Siemens and the SBC type C515C-BBE and the MB-01 Mother board from LAWICEL. With this kit you do not need to put down several hours on coding and other research. In stead you connect the system as shown above together with a PC, download the sample code to the systems trough the serial port and then you are up running your first CAN application.

The **CAN-ST1** system consist of **2 CAN nodes** with **CAN cables**, **KEIL MON51**, **RS-232 cables**. All source code and object code is on an accompanying **CD-ROM** toghether will all manuals and application notes in PDF format. The AC/DC adapter is only included when shipped to Scandinavia, this adapter should have 9-12VDC and 300mA (and one is only needed, since the CAN bus is driving the other nodes according to the CiA draft standard 102.

The CAN nodes are equipped with 8 LEDs and 8 push buttons, RS-232 interface, CAN interface (CiA standard), BCD switch (node addressing), header contacts with all signals from the Microcontroller, which makes it possible to expand the system, CAN termination jumper and a jumper for enabling the power out on the CAN bus according to the CiA standard. By doing this it is possible to drive the other nodes with only one AC/DC adapter.

It is also possible to connect a 3:d node acting as a simple CAN logger to a Win95 program

through the serial port. In that way the user could see all traffic on the bus and send messages in a simple way, this is **CAN-ST2**.

For pricing and more information feel free to contact us (sales@lawicel.com).

Last updated on the 8:Th of September 1998

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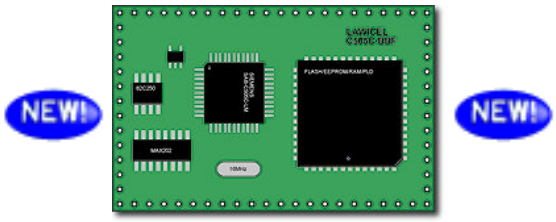
8051 Compatible SBC with CAN and FLASH/EEPROM



Please click on the image for more information.
24:th of February 1999

Embedded Pascal for 8051/52/Z180/AVR

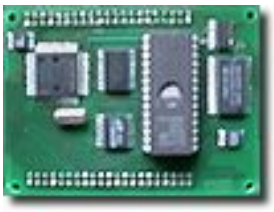
Low cost and powerful development tool!

Please click on the image for more information.
23:rd of September 1998

CAN Starter kit with the 8051 compatible C515C from Siemens

Please click on the image for more information.
30:th of June 1998

8051 Compatible SBC with CAN



Please click on the image for more information.
24:th of May 1998

Last updated on the 30:th of June 1998
