

BC50I – Box PC for Industrial Applications

- **AMD Embedded G-Series Dual-Core APU**
- **2 Gigabit Ethernet**
- **2 USB 2.0**
- **2 DisplayPort® outputs, full HD with each display**
- **WLAN, UMTS, GPS, GSM, HSDPA, EDGE, LTE via 1 PCI Express® Mini Card slot**
- **2 Slots for IBIS, GPS, RS232, RS485, RS422**
- **1 CAN Bus interface optional**
- **24 VDC nom. (16 to 36 V)**
- **-40 to +70°C operating temperature**
- **Fanless and maintenance-free design**



The BC50I is a maintenance-free box computer that has been designed for independent use or as display computer electronics for use in industrial applications, e.g. for machine control, surveillance or commercial vehicles or robotics.

It is powered by an AMD Embedded G-Series APU (Accelerated Processing Unit), the T48N, running at 1.4 GHz. The G-Series combines low-power CPUs and advanced GPUs, in this case an AMD Radeon™ HD 6310, into a single embedded device.

The use of the Embedded G-Series makes for high scalability in CPU (single/dual core) and graphics performance (various Radeon™ GPUs or none at all). The BC50I is equipped with 2 GB of DDR3 SDRAM and offers SD card and mSATA slots. A SATA hard-disk/solid-state drive can be installed within the housing as an option.

The system is designed for fanless operation at temperatures from -40 to +70°C, its special aluminum housing with cooling fins serves as a heat sink for the internal electronics and in this way provides conduction cooling.

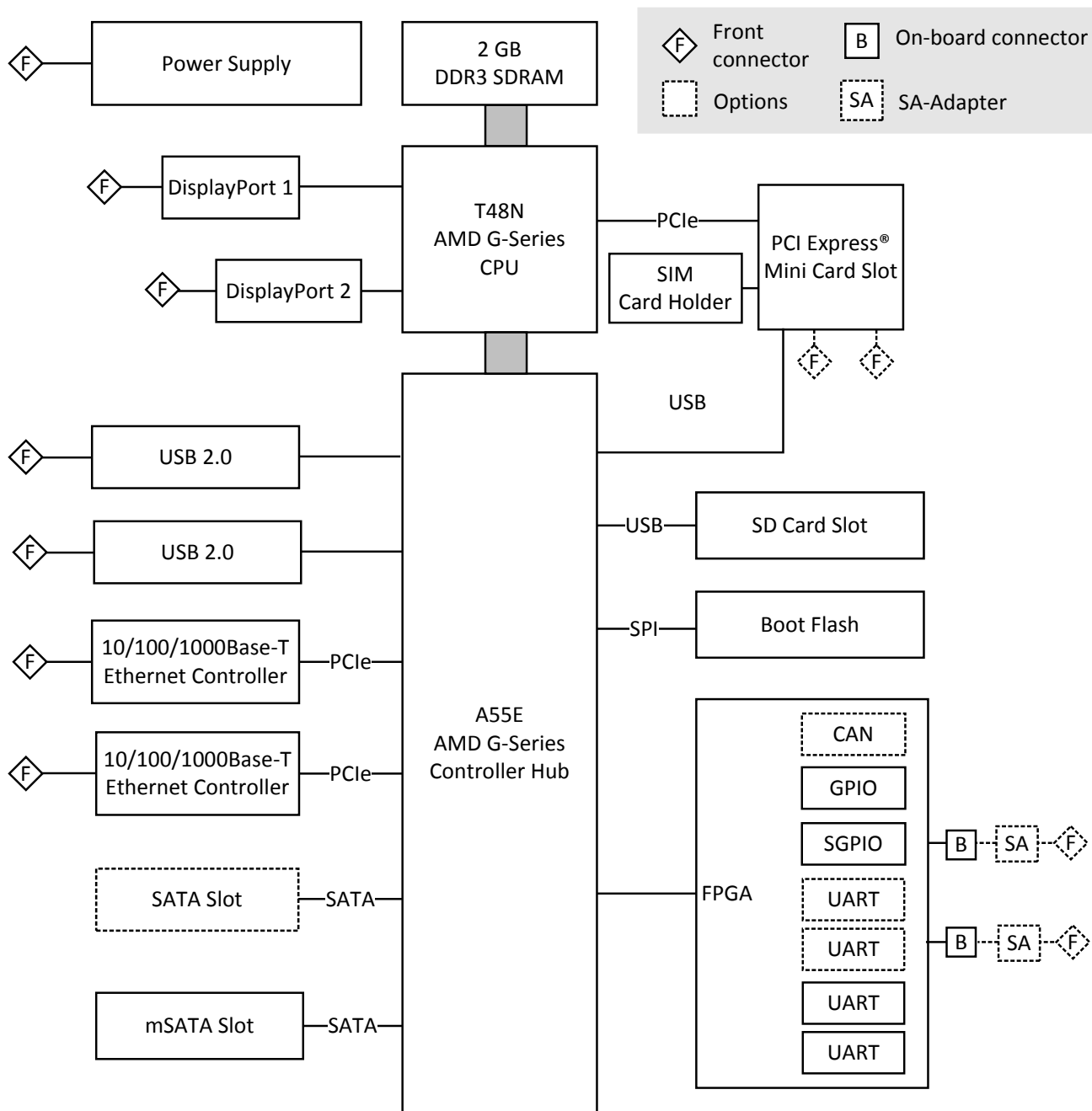
The BC50I supports up to two DisplayPort® interfaces with a maximum resolution of 2560x1600 each. The DisplayPort® interfaces and all other I/O are available at the unit's front panel on standard connectors like USB, 9-pin D-Sub (optional serial I/O), RJ45 (Gigabit Ethernet) and DisplayPort®.

On the inside, the system offers one PCI Express® Mini card slot with a SIM card slot. The necessary antenna connectors can be made available at the front panel.

The BC50I comes with its own integrated 24 VDC nom. (16 to 36 V) power supply. The power can be switched on and off using an ignition signal on the power connector, and a run-down time after switching off the power can be adjusted by software.

The combination of the various CPU/GPU options with the available selection of external interfaces (realized via separate graphics and I/O interface boards within the system) makes for an extremely flexible system design that can quickly be tailored to a vast number of applications.

Diagram



Technical Data

CPU	<ul style="list-style-type: none"> ■ AMD Embedded G-Series T48N <ul style="list-style-type: none"> □ Dual-Core □ 1.4 GHz processor core frequency □ 1066 MT/s DDR3 Speed □ Accelerated Processing Unit (APU), also includes GPU (see Graphics)
Controller Hub	<ul style="list-style-type: none"> ■ AMD A55E
Memory	<ul style="list-style-type: none"> ■ 64 KB L1 and 512 KB L2 cache ■ 2 GB DDR3 SDRAM system memory <ul style="list-style-type: none"> □ Soldered
Mass Storage	<ul style="list-style-type: none"> ■ One SD card slot <ul style="list-style-type: none"> □ Via USB ■ One mSATA slot <ul style="list-style-type: none"> □ SATA Revision 3.x support □ Transfer rates up to 600 MB/s (6 Gbit/s) ■ Serial ATA (SATA) <ul style="list-style-type: none"> □ One port for hard-disk/solid-state drive mounted within the unit's housing □ SATA Revision 3.x support □ Transfer rates up to 600 MB/s (6 Gbit/s)
Graphics	<ul style="list-style-type: none"> ■ AMD Radeon™ HD 6310 <ul style="list-style-type: none"> □ Dual independent display support □ Dual DisplayPort® □ Maximum resolution: 2560x1600 □ Embedded in T48N APU ■ 3D Graphics Acceleration <ul style="list-style-type: none"> □ Full DirectX® 11 support, including full speed 32-bit floating point per component operations □ Shader Model 5 □ OpenCL™ 1.1 support □ OpenGL® 4.0 support ■ Motion Video Acceleration <ul style="list-style-type: none"> □ Dedicated hardware (UVD 3) for H.264, VC-1 and MPEG2 decoding □ HD HQV and SD HQV support: noise removal, detail enhancement, color enhancement, cadence detection, sharpness, and advanced de-interlacing □ Super up-conversion for SD to HD resolutions
Front I/O	<ul style="list-style-type: none"> ■ 2 DisplayPort® 1.1a interfaces <ul style="list-style-type: none"> □ AUX channels and hot plug detection ■ 2 Gigabit Ethernet <ul style="list-style-type: none"> □ Via RJ45 connectors ■ 2 USB 2.0 <ul style="list-style-type: none"> □ Via Series A connector ■ 2 SA-Adapter™ slots for serial I/O <ul style="list-style-type: none"> □ RS232, RS485, RS422, IBIS or GPS possible on both slots □ SGPIO switchable by software on one slot □ CAN bus optional on one slot ■ 8 LEDs <ul style="list-style-type: none"> □ 4 for Ethernet link and activity status □ 2 user LEDs □ 1 status LED □ 1 power OK LED
1 PCI Express® Mini Card slot	<ul style="list-style-type: none"> ■ For functions like WIFI, WIMAX, GSM/GPRS, UMTS ■ 1 SIM card slot ■ PCI Express® and USB interface
Real-Time Clock	<ul style="list-style-type: none"> ■ Buffered by Gold Cap for up to 12 h <ul style="list-style-type: none"> □ 72 h as an option

Technical Data

Electrical Specifications	<ul style="list-style-type: none">■ Supply voltage:<ul style="list-style-type: none">□ 24 VDC nom. (16 to 36 V)□ Ignition pin for power on and off□ Run-down time after power-off■ Power consumption: up to 35 W (with PCI Express® Mini Card)
Mechanical Specifications	<ul style="list-style-type: none">■ Dimensions: approx. 250 mm x 220 mm x 44.1 mm■ Weight: 1.8 kg■ Front protected according to IP20
Environmental Specifications	<ul style="list-style-type: none">■ Temperature range (operation):<ul style="list-style-type: none">□ -40°C to 70°C□ Fanless operation■ Temperature range (storage): -40..+85°C■ Relative humidity (operation): max. 95% non-condensing■ Relative humidity (storage): max. 95% non-condensing■ Altitude: -300 m to +3,000 m■ Shock: 50 m/s², 30 ms■ Vibration (function): 1 m/s², 5 Hz - 150 Hz■ Vibration (lifetime): 7.9 m/s², 5 Hz - 150 Hz■ Conformal coating of internal components on request
MTBF	<ul style="list-style-type: none">■ tbd @ 40°C according to IEC/TR 62380 (RDF 2000)
Safety	<ul style="list-style-type: none">■ PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers
EMC	<ul style="list-style-type: none">■ Conforming to EN 55022 (radio disturbance), IEC 61000-4-2 (ESD) and IEC 61000-4-4 (burst)
BIOS	<ul style="list-style-type: none">■ InsydeH2O™ UEFI Framework
Software Support	<ul style="list-style-type: none">■ Windows® 7■ Windows® Embedded Standard 7■ Windows® XP Embedded■ Linux■ For more information on supported operating system versions and drivers see Downloads.

Configuration & Options

Standard Configurations

Article No.	APU	Graphics	Memory	Input Voltage	Antenna Connectors	SATA HDD/SSD
09BC50I00	AMD T48N, 1.4 GHz Dual Core (18W)	AMD Radeon HD 6310	2 GB DDR3-1066, 64KB L1 cache, 512kB L2 cache	24 VDC nom.	No	No

Options

APU	<ul style="list-style-type: none"> ■ AMD T56N, 1.65 GHz Dual Core, 18W, AMD Radeon™ HD 6320 ■ AMD T52R, 1.5 GHz Single Core, 18W, AMD Radeon™ HD 6310 ■ AMD T48N, 1.4 GHz Dual Core, 18W, AMD Radeon™ HD 6310 ■ AMD T40N, 1.0 GHz Dual Core, 9W, AMD Radeon™ HD 6290 ■ AMD T44R, 1.2 GHz Single Core, 9W, AMD Radeon™ HD 6250 ■ AMD T40E, 1.0 GHz Dual Core, 6.4W, AMD Radeon™ HD 6250 ■ AMD T40R, 1.0 GHz Single Core, 5.5W, AMD Radeon™ HD 6250 ■ AMD T16R, 615 MHz Single Core, 4.5W, AMD Radeon™ HD 6250
Memory	<ul style="list-style-type: none"> ■ Up to 4 GB DDR3 SDRAM system memory ■ SATA hard-disk/solid state drive (mounted within housing)
Graphics	<ul style="list-style-type: none"> ■ Maximum resolution depending on GPU <ul style="list-style-type: none"> □ 2560x1600 (all DisplayPort® interfaces) with Radeon™ HD 6310 and 6320 □ 1920x1200 (all DisplayPort® interfaces) with Radeon™ HD 6250 and 6290
I/O	<ul style="list-style-type: none"> ■ Antenna connectors <ul style="list-style-type: none"> □ For functions like WIFI, WIMAX, GSM/GPRS, UMTS, LTE in combination with PCI Express® Mini Card □ Reverse SMA connector
Environmental Specifications	<ul style="list-style-type: none"> ■ Temperature range (operation): <ul style="list-style-type: none"> □ -40°C to 85°C (screened) with wider housing with additional cooling fins

As the product concept is very flexible, there are many other configuration possibilities. Please contact our sales team if you do not find your required function in the options. Please note that some of these options may only be available for large volumes.

Ordering Information

Standard BC50I Models	09BC50I00	Industrial box computer with dual graphics connection, 24 VDC PSU, AMD Dual Core T48N, 1.4 GHz, 2 GB RAM, SD card slot, mSATA slot, 2x DisplayPort®, 2x Gb Ethernet RJ45, 2x USB, 2x SA-Adapter™ slot (UARTs, fieldbuses), 1x PCI Express® Mini card slot, 1x SIM card slot, -40..+70°C screened
Memory	0751-0047	SD card, 4GB, -40..+85°C
	0751-0051	SSD mSATA, 8 GB, -40..+85°C
	0754-0007	SSD SATA 256 GB, 2.5" MLC, 0..+70°C
SA-Adapters™	08SA01-06	RS232, not optically isolated, -40..+85°C screened
	08SA02-07	RS422/485, full duplex, optically isolated, -40..+85°C screened
	08SA03-01	RS232, optically isolated, -40..+85°C screened
	08SA08-01	CAN ISO high-speed, optically isolated, -40..+85°C screened
	08SA15-00	8 binary I/O channels, -40..+85°C with qualified components, no RoHS
	08SA22-00	IBIS master SA-Adapter™, -40..+85°C screened
	08SA22-01	IBIS slave SA-Adapter™, -40..+85°C screened
Miscellaneous Accessories	05BC01-00	Mechanics kit for BoxPC: 19" mounting kit
	0780-0005	DisplayPort® to DVI-D adapter, 20 cm
	0780-0006	Active DisplayPort® (DP) to single link DVI-D adapter, 20cm, max. resolution 1920x1200, AMD / ATI Eyefinity technology
	0781-0002	HF antenna cable with U.FL connector to RP-SMA connector, 200 mm
	0799-0003	UMTS PCIe® Mini Card GTM661W, half-size card with adapter for full-size slot, -10° C..+55°C operating temperature, -40°C..+85°C storage temperature Note: when using wireless modules the R&TTE Guide of the EU has to be observed. See the R&TTE website For the module's driver see Option's website
	0799-0004	WLAN PCIe® MiniCard 6205, 802.11n 2x2 MIMO, 2.4 GHz and 5 GHz, half-size card with adapter for full-size slot, operating temperature 0°C..+80°C, storage temperature -40..+85°C Note: when using wireless modules the R&TTE Guide of the EU has to be observed. See the R&TTE website For the module's driver see Intel®'s website
	08AE84-00	Carrier for 2.5" HDD/SSD SATA disk, -40..+85°C with qualified components
Software: Windows®	This product is designed to work under Windows®. See below for potentially available separate software packages from MEN.	
	10F014-78	Windows® XP Embedded BSP (MEN) for F11S, F14, F15, F17, F18, F19P, F21P, G20, XM1, XM1L, XM2, MM1, MM2, SC21, SC24, DC1, DC2, RC1 and BC50M
	10Y000-78	Windows® Embedded Standard 7 BSP for F11S, F19P, F21P, G20, XM1L, XM2, MM1, MM2, SC21, SC24, BC50M, F206, F210, F215, F216, G215, P506, P507 and P511
	13T025-70	Windows® XP GPU and chipset driver (AMD) for BC50M and SC24
	13T026-70	Windows® Vista™ / Windows® 7 GPU and chipset driver (AMD) for BC50M, SC24 and G214

Ordering Information

For operating systems not mentioned here [contact MEN sales](#).

Documentation

Compare Chart Box and Panel PCs » [Download](#)

Contact Information

Germany

MEN Mikro Elektronik GmbH
Neuwieder Straße 3-7
90411 Nuremberg
Phone +49-911-99 33 5-0
Fax +49-911-99 33 5-901

info@men.de
www.men.de

France

MEN Mikro Elektronik SA
18, rue René Cassin
ZA de la Châtelaine
74240 Gaillard
Phone +33 (0) 450-955-312
Fax +33 (0) 450-955-211

info@men-france.fr
www.men-france.fr

USA

MEN Micro, Inc.
24 North Main Street
Ambler, PA 19002
Phone (215) 542-9575
Fax (215) 542-9577

sales@menmicro.com
www.menmicro.com

The date of issue stated in this data sheet refers to the Technical Data only. Changes in ordering information given herein do not affect the date of issue. All brand or product names are trademarks or registered trademarks of their respective holders.

MEN is not responsible for the results of any actions taken on the basis of information in the publication, nor for any error in or omission from the publication.

MEN expressly disclaims all and any liability and responsibility to any person, whether a reader of the publication or not, in respect of anything, and of the consequences of anything, done or omitted to be done by any such person in reliance, whether wholly or partially, on the whole or any part of the contents of the publication.

The correct function of MEN products in mission-critical and life-critical applications is limited to the environmental specification given for each product in the technical user manual. The correct function of MEN products under extended environmental conditions is limited to the individual requirement specification and subsequent validation documents for each product for the applicable use case and has to be agreed upon in writing by MEN and the customer. Should the customer purchase or use MEN products for any unintended or unauthorized application, the customer shall indemnify and hold MEN and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim or personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that MEN was negligent regarding the design or manufacture of the part.

In no case is MEN liable for the correct function of the technical installation where MEN products are a part of.

Copyright © 2013 MEN Mikro Elektronik GmbH. All rights reserved.