BC50I

Rugged Box PC for Industrial Automation with AMD G-Series
Embedded Computer for Machine Control & Robotics

- » **AMD Embedded G-Series Dual-Core APU**
- » **2 Gigabit Ethernet**
- » **2 USB 2.0**
- » **2 DisplayPort outputs, full HD with each display**
- » **WLAN, GSM (2G), UMTS (3G), LTE (4G), GPS or GLONASS 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**

The BC50I is a fanless, 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.
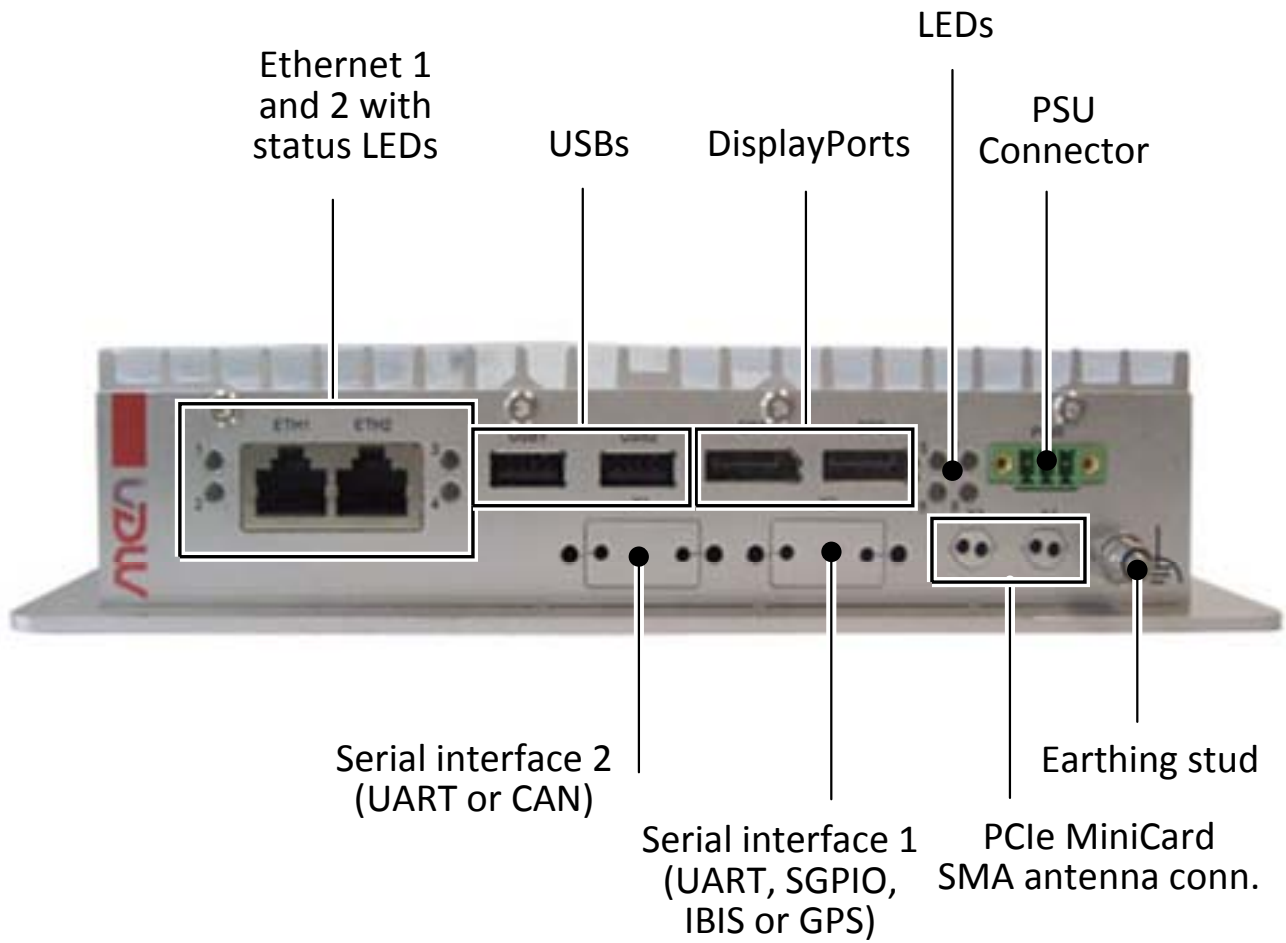
The use of the EmbeddedG-Series makes for high scalability in CPU (single/dual core) and graphics performance (various Radeon GPUs or none at all).

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 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.

Data Sheet

Ethernet 1
and 2 with
status LEDs

USBs

DisplayPorts

LEDs

PSU
Connector

Serial interface 2
(UART or CAN)

Serial interface 1
(UART, SGPIO,
IBIS or GPS)

PCIe MiniCard
SMA antenna conn.

Earthing stud

CPU	■ AMD Embedded G-Series T48N
	  □ Dual-Core
	  □ 1.4 GHz processor core frequency
	  □ 1066 MT/s DDR3 Speed
	  □ Accelerated Processing Unit (APU), also includes GPU (see Graphics)

Controller Hub	■ AMD A55E
Memory	■ 64 KB L1 and 512 KB L2 cache ■ 2 GB DDR3 SDRAM system memory □ Soldered

Mass Storage	■ One SD card slot
	  □ Via USB
	■ One mSATA slot
	  □ SATA Revision 3.x support
	  □ Transfer rates up to 600 MB/s (6 Gbit/s)
	■ Serial ATA (SATA)
	  □ One port for hard-disk/solid-state drive mounted within the unit's housing
	  □ SATA Revision 2.x support
	  □ Transfer rates up to 300 MB/s (3 Gbit/s)

Graphics	■ AMD Radeon HD 6310
	  □ Dual independent display support
	  □ Dual DisplayPort
	  □ Maximum resolution: 2560x1600
	  □ Embedded in T48N APU
	■ 3D Graphics Acceleration
	  □ 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
	  □ 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	■ 2 DisplayPort 1.1a interfaces
	  □ AUX channels and hot plug detection
	■ 2 Gigabit Ethernet
	  □ Via RJ45 connectors
	■ 2 USB 2.0
	  □ Via Type A connector
	■ 2 SA-Adapter slots for serial I/O
	  □ RS232, RS485, RS422, IBIS or GPS possible on both slots
	  □ SGPIO switchable by software on one slot
	  □ CAN bus optional on one slot (on request)
	■ 8 LEDs
	  □ 4 for Ethernet link and activity status
	  □ 2 user LEDs
	  □ 1 status LED
	  □ 1 power OK LED

Technical Data

1 PCI Express Mini Card slot	■ For functions such as
	  □ Mobile service standards: GSM (2G), UMTS (3G), LTE (4G) and derivates
	  □ Wireless communication: WLAN / WiFi IEEE 802.11 and derivates
	  □ Positioning: GPS, GLONASS, GALILEO
	  □ Real-Time Ethernet functionality via Hilscher PCI Express Mini cards
	■ 1 SIM card slot
	■ PCI Express and USB interface

Real-Time Clock	■ Buffered by Gold Cap for 12 h
Electrical Specifications	■ Supply voltage: □ 24 VDC nom. (16 to 36 V) ■ Power consumption: up to 35 W (with PCI Express Mini Card)
Mechanical Specifications	■ Dimensions: approx. 250 mm x 220 mm x 44.1 mm ■ Weight: 1.8 kg ■ International Protection Rating: IP20

Environmental Specifications	■ Temperature range (operation):
	  □ -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	■ tbd @ 40°C according to IEC/TR 62380 (RDF 2000)

Safety	■ Flammability (PCBs)
	  □ UL 94 V-0
	■ Fire Protection
	  □ EN 45545-2 (Railway)
	  □ ECE-R118 (Automotive)

EMC	■ Conforming to EN 55022 (radio disturbance)
BIOS	■ InsydeH2O UEFI Framework
Software Support	■ Windows 7 ■ Windows Embedded Standard 7 ■ Linux ■ For more information on supported operating system versions and drivers see Software.

Technical Data

Options

APU

- AMD T48N, 1.4 GHz Dual Core, 18W, AMD Radeon HD 6310
- AMD T56N, 1.65 GHz Dual Core, 18W, AMD Radeon HD 6320 (on request)
- AMD T56E, 1.65 GHz Dual Core, 18W, AMD Radeon HD 6250 (on request)
- AMD T48E, 1.4 GHz Dual Core, 18W, AMD Radeon HD 6250 (on request)
- AMD T40N, 1.0 GHz Dual Core, 9W, AMD Radeon HD 6290 (on request)
- AMD T40E, 1.0 GHz Dual Core, 6.4W, AMD Radeon HD 6250 (on request)
- AMD T52R, 1.5 GHz Single Core, 18W, AMD Radeon HD 6310 (on request)
- AMD T44R, 1.2 GHz Single Core, 9W, AMD Radeon HD 6250 (on request)
- AMD T40R, 1.0 GHz Single Core, 5.5W, AMD Radeon HD 6250 (on request)
- AMD T16R, 615 MHz Single Core, 4.5W, AMD Radeon HD 6250 (on request)
- AMD T48L, 1.4 GHz Dual Core, 18W (on request)
- AMD T30L, 1.4 GHz Single Core, 18W (on request)
- AMD T24L, 1000 MHz Single Core, 5W (on request)

Memory

- 2 GB DDR3 SDRAM system memory
- 4 GB DDR3 SDRAM system memory (on request)
- SATA hard-disk/solid state drive (mounted within housing)

Graphics

- Maximum resolution depending on GPU
  - 2560x1600 (all DisplayPort interfaces) with Radeon HD 6310 and 6320
  - 1920x1200 (all DisplayPort interfaces) with Radeon HD 6250 and 6290 (on request)

I/O

- Antenna connectors
  - For functions like Wi-Fi, WIMAX, GSM/GPRS, UMTS, LTE in combination with PCI Express Mini Card
  - Reverse SMA connector

Miscellaneous

- Real-time clock
  - 12 h buffer time
  - 72 h buffer time (on request)

Environmental Specifications

- Temperature range (operation):
  - -40°C to 85°C (screened) with wider housing with additional cooling fins

Other Options

- 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.
- Some of these options may only be available for large volumes.

Configuration & Options

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www.men.de/products/bc50i/

Contact Information