

# BC50F

## Rugged Box PC for Industrial Automation with AMD G-Series Embedded Computer for Real-time Ethernet & Fieldbus Applications

- » **AMD Embedded G-Series Dual-Core APU**
- » **2 Real-Time Ethernet (e.g. PROFINET, EtherCAT)**
- » **2 Gigabit Ethernet**
- » **2 USB 2.0**
- » **2 DisplayPort, full HD with each display**
- » **1 Slot for RS232, RS485, RS422, CAN, GPS, IBIS**
- » **24 VDC nom. (16 to 36 V)**
- » **0 to +60°C operating temperature, fanless**



The BC50F is a fanless, maintenance-free box computer that has been designed for real-time Ethernet applications in industrial environments, e.g. for machine control, robotics or vehicles.

It offers two real-time Ethernet interfaces implemented using a Hilscher PCI Express Mini Card.

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).

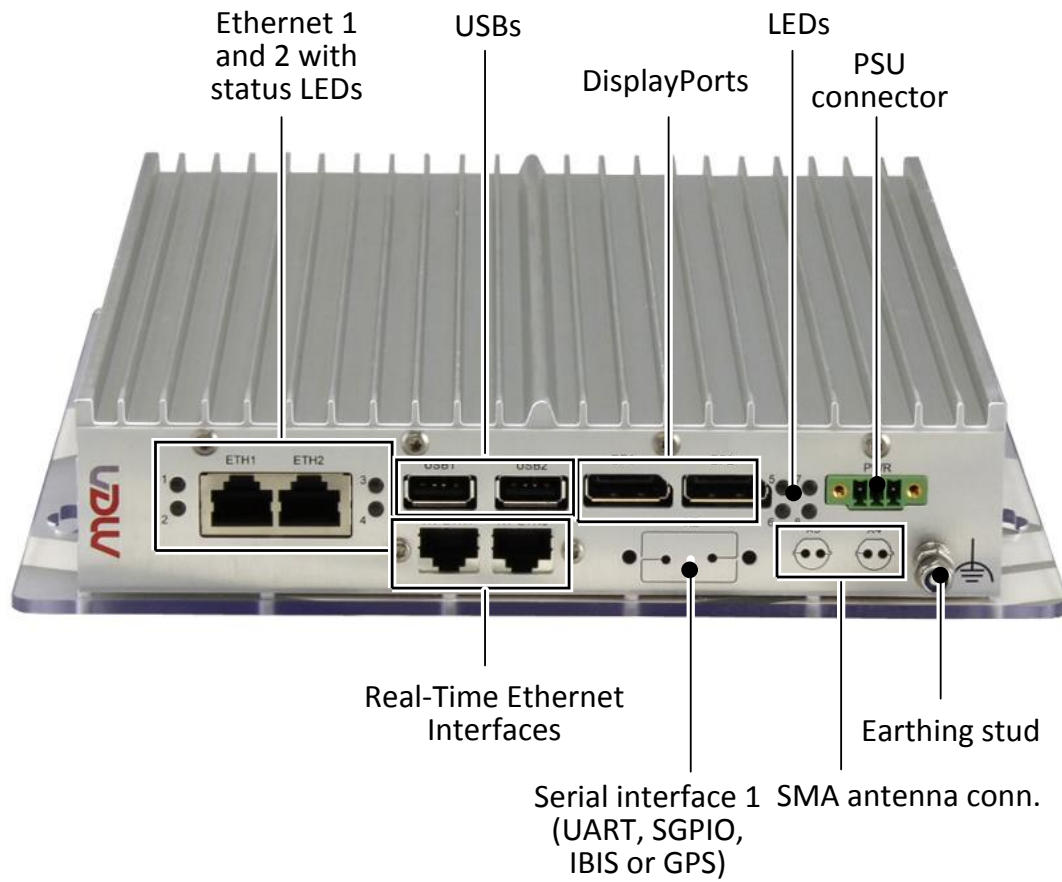
The BC50F is equipped with 2 GB of DDR3 SDRAM and offers SD card and mSATA slots.

The system is designed for fanless operation at temperatures from 0 to +60°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 BC50F 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.

The BC50F 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.



**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 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 Real-Time Ethernet via Hilscher CFX90E PCI Express Mini Card
  - Via RJ45 connectors
- 2 USB 2.0
  - Via Type A connector
- 1 SA-Adapter slot for serial I/O
  - RS232, RS485, RS422, IBIS or GPS possible on both slots
  - SGPIO switchable by software
  - CAN bus on request
- 12 LEDs
  - 4 for Real-Time Ethernet link and activity status
  - 4 for Ethernet link and activity status
  - 2 user LEDs
  - 1 status LED
  - 1 power OK LED

**1 PCI Express Mini Card slot**

- With Hilscher Real-Time Ethernet Mini PCI Express Interface
  - EtherCAT Master, EtherCAT Slave
  - EtherNet/IP Scanner (Master), EtherNet/IP Adapter (Slave)
  - Open Modbus/TCP
  - POWERLINK Controlled Node/Slave
  - PROFINET IO-Controller (Master), PROFINET IO-Device (Slave)
  - sercos Master, sercos Slave
  - VARAN Client (Slave)

**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):
  - 0°C to 60°C
  - Fanless operation
- Temperature range (storage): -20...+70°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/s<sup>2</sup>, 30 ms
- Vibration (function): 1 m/s<sup>2</sup>, 5 Hz - 150 Hz
- Vibration (lifetime): 7.9 m/s<sup>2</sup>, 5 Hz - 150 Hz
- Conformal coating of internal components on request

**MTBF**

- 262 000 h @ 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.

## 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)

### 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)

### Miscellaneous

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

### 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.

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[www.men.de/products/bc50f/](http://www.men.de/products/bc50f/)

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