

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).

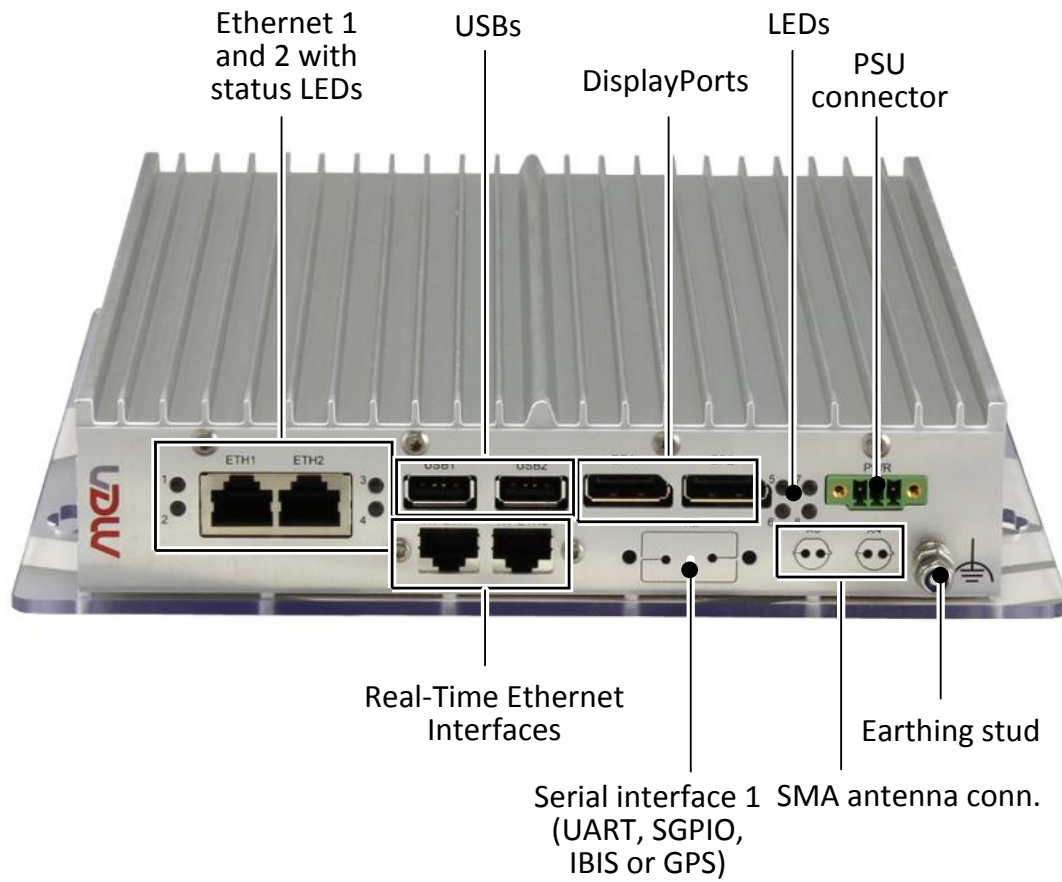
The BC50F is equipped with 2 GB of DDR3 SDRAM and offers SD card and mSATA slots.

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/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

- 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.

Germany

MEN Mikro Elektronik GmbH

Neuwieder Straße 3-7
90411 Nuremberg
Phone +49-911-99 33 5-0

sales@men.de
www.men.de

France

MEN Mikro Elektronik SAS

18, rue René Cassin
ZA de la Châtelaine
74240 Gaillard
Phone +33-450-955-312

sales@men-france.fr
www.men-france.fr

USA

MEN Micro Inc.

860 Penllyn Blue Bell Pike
Blue Bell, PA 19422
Phone 215-542-9575

sales@menmicro.com
www.menmicro.com

China

MEN Mikro Elektronik (Shanghai) Co., Ltd.

Room 808-809, Jiaxing Mansion, No. 877 Dongfang Road
200122 Shanghai
Phone +86-21-5058-0961

sales@men-china.cn
www.men-china.cn

Up-to-date information, documentation and ordering information:

www.men.de/products/bc50f/

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.

© 2017 MEN Holding