

BL70S

Rugged Box PC for Transportation with Intel Core i3 / i5 / i7 Railway & Automotive Embedded Computer for Storage Control

- » Intel Core i7, 3rd generation
- » Up to 16 GB DDR3 DRAM soldered, ECC
- » RAID 0/1, hot-pluggable on 2 HDD/SSD shuttles
- » 4-port Gb Ethernet switch with PoE
- » 1 Gb Ethernet uplink
- » 1 PCI Express Mini Card slot with 2 micro-SIM slots for WLAN, GSM (2G), UMTS (3G), LTE (4G), GPS or GLONASS functionality
- » 2 slots for IBIS, RS232, RS485, RS422
- » 24 and 36 VDC nom. class S2 PSU, with ignition
- » -40 to +85°C operating temperature, fanless
- » Conformal coating of internal components
- » Compliant to EN 50155 (railways)
- » Compliant to ISO 7637-2 (E-mark for automotive)



The BL70S is a fanless, maintenance-free box computer for embedded storage applications such as content servers or video recorders. It offers two external SATA shuttles with hot-plug support. The BL70S is powered by an Intel Core i7-3517UE CPU, running at 1.7 GHz. Other processors of the 3rd generation Intel Core i7 family can be used which makes for high scalability in CPU performance. The BL70S is equipped with 4 GB of DDR3 SDRAM and offers microSD card and mSATA slots.

Extensive Ethernet Functionality

On the front of the rugged BL70S five Gigabit Ethernet interfaces are accessible. Four of these ports share one Gigabit Ethernet port from the chipset via a switch, while one port is used exclusively as Gigabit Ethernet uplink. The four ports routed over the switch support Power-over-Ethernet.

Wireless Communication

One PCI Express Mini Card slot with two SIM card slots offers the possibility to implement the wide range of functionality available on this form factor. This includes for example GSM (2G), UMTS (3G), LTE (4G) and derivatives, WLAN / Wi-Fi IEEE 802.11 and derivatives as well as positioning systems GPS or GLONASS.

Fanless Operation for Mobile Applications

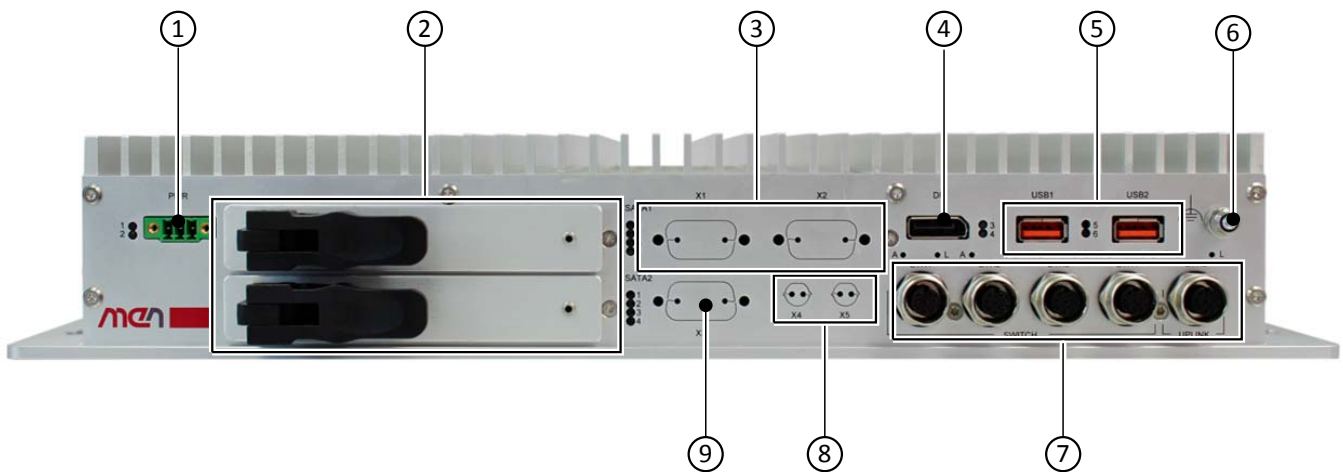
The system is designed for fanless operation at temperatures from -40 to +70°C (+85°C for up to 10 minutes), its special aluminum housing with cooling fins serves as a heat sink for the internal electronics and in this way provides conduction cooling.

Railway-Compliant PSU with Ignition Function

The BL70S comes with its own integrated class S2 wide-range power supply with 24 and 36VDC nominal input voltage and a power consumption of 30 W and is in compliance with EN 50155 and ISO 7637-2 (E-mark for automotive). 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 ignition signal can be adjusted by software.

Flexible System Design

The various CPU options with the available selection of external interfaces makes for an extremely flexible system design that can quickly be tailored to a vast number of applications. The BL70S supports one DisplayPort interface with a resolution of 2560x1600. In addition, a multitude of other I/O is available at the front panel, including two USB 2.0 and variable slots for legacy serial I/O (e.g. RS232) or CAN bus.



- ① PSU connector (10V-50.4V)
- ② 2 Hard Disk Shuttles
- ③ 2 SA-Adapter cutouts for RS232, RS485/422, CAN, IBIS master, IBIS slave or GPIO
- ④ 1 DisplayPort
- ⑤ 2 USB 2.0
- ⑥ Earthing Stud
- ⑦ 5 Gigabit Ethernet (4-port Ethernet switch and one uplink port)
- ⑧ 2 antenna connector cutouts for PCI Express Mini Card
- ⑨ Cutout for HD Audio

CPU

- The following CPU types are supported:
 - Intel Core i7-3517UE, 2 cores, 4 threads, 1.7 GHz, 2.8 GHz Turbo Boost, 17 W, 4 MB cache
 - Intel Core i3-3217UE, 2 cores, 4 threads, 1.6 GHz, 17 W, 3 MB cache
 - Intel Celeron 1047UE, 2 cores, 2 threads, 1.4 GHz, 17 W, 2 MB cache
- Chipset
 - QM77 Platform Controller Hub (PCH)

Memory

- System RAM
 - Soldered DDR3 with ECC
 - 16 GB max.

Security

- Trusted Platform Module 1.2

Mass Storage

- The following mass storage devices can be assembled:
 - microSD card
 - mSATA
 - SSD 2.5" (SATA, via external shuttles)

Graphics

- Processor graphics
- Maximum resolution: 2560 x 1600 pixels (DisplayPort 1.1a)

Wireless Functionality

- Possible wireless functions:
 - GNSS
 - LTE
 - WLAN

Interfaces

- Video
 - 1x DisplayPort
- USB
 - 2x USB 2.0, Type A
- Ethernet
 - 5x 10/100/1000BASE-T, M12, A-coded
 - On request: 5x 10/100BASE-T, M12, A-coded
 - On request: 4x 10/100BASE-T, M12, A-coded, 1x 10/100/1000BASE-T M12 A-coded
 - Power over Ethernet PSE support on all ports
- PCI Express Mini Card
 - 1x PCI Express Mini Card slot
 - PCIe Full-Mini; PCIe x1, USB 2.0
- SIM card
 - 2x micro-SIM card slot, internally
- Power input
 - 1x power inlet connector
 - Ignition input
- LED
 - Status: board status, power status
 - Ethernet: link, activity
 - User configurable: 4x
- Cutout
 - Antenna connector: RP-SMA receptacle, RP-SMA plug, QMA receptacle, QMA plug, FME receptacle, FME plug
 - D-Sub options: Audio, RS232, RS422/RS484, CAN bus, digital I/O, GPS, real-time Ethernet, Profibus, IBIS slave

Supervision and Control

- Board management controller
- Watchdog timer
- Temperature measurement
- Real-time clock, buffered by supercapacitor (3 days)

Electrical Specifications

- Supply voltages
 - 24 V and 36 V nominal input voltage according to EN 50155
 - 24 V nominal input voltage according to ISO 7637-2 (E-mark) requirements
 - Input voltages of 48V, 72V, 110V (on request)
 - EN 50155 power interruption class S2
- Power consumption
 - 24 W typ.
- Isolation voltage: 1500 VDC against shield

Mechanical Specifications

- Dimensions: (W) 390 mm, (D) 215 mm, (H) 66 mm
- Weight:
 - 4.25 kg (model 09BL70S00 in standard housing)
 - 5.5 kg (model 09BL70S00 in 19" insertion frame)
- Cooling
 - Air cooling, natural convection, airflow 0.4 m/s
- Protection rating
 - IP20
 - Other IP protection classes possible on request

Environmental Specifications

- Temperature range (operation)
 - -40°C to 70°C, with up to 85°C for 10 minutes according to class TX (EN 50155)
 - Fanless operation
- Temperature range (storage): -40°C to +85°C
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300 m to +3000 m
- Shock: 50 m/s², 30 ms (EN 61373)
- Vibration (function): 1 m/s², 5 Hz to 150 Hz (EN 61373)
- Vibration (lifetime): 7.9 m/s², 5 Hz to 150 Hz (EN 61373)

Reliability

- MTBF: 203 819 h @ 40°C according to IEC/TR 62380 (RDF 2000)(model 09BL70S00)

Safety

- Fire Protection
 - EN 45545-2 (Railway)
 - ECE-R118 (Automotive)
- Electrical Safety
 - EN 50153
 - EN 50155

EMC

- Railway
 - EN 50121-3-2
- Automotive
 - ECE R10 (E-mark)
 - ISO 10605 (ESD)

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.

Germany

MEN Mikro Elektronik GmbH

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

sales@men.de
www.men.de

USA

MEN Micro Inc.

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

sales@menmicro.com
www.menmicro.com

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

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/bl70s/

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