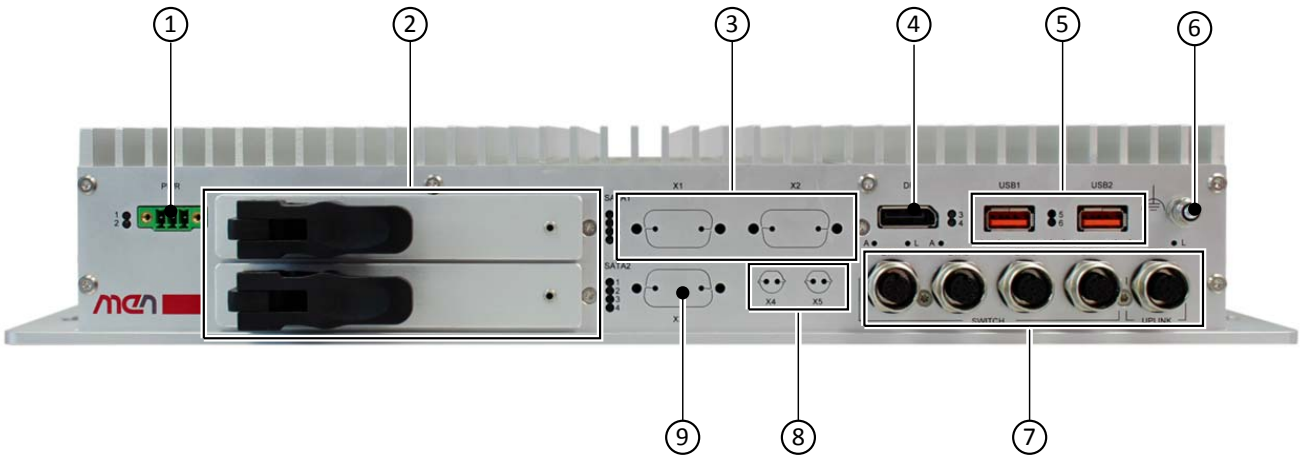
BL70S – Box PC for Storage Applications (Intel®)

- **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 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. (10 to 50.4 V) 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 maintenance-free box computer that has been designed for storage applications such as content servers or video recorders. It offers two external SATA shuttles which support RAID 0/1 and hot-plugging.
On the front of the BL70S as many as 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.
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 mobile service standards GSM (2G), UMTS (3G), LTE (4G) and derivates, wireless communication standards WLAN / Wi-Fi IEEE 802.11 and derivates as well as positioning systems GPS or GLONASS.
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 (single/dual/quad core) performance.
The BL70S is equipped with 4 GB of DDR3 SDRAM and offers microSD™ card and mSATA slots. 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.
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.
The BL70S comes with its own integrated class S2 wide-range power supply with 24 and 36 VDC nominal input voltage (10 to 50.4 V) 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 power can be adjusted by software.
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.

Diagram



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

Technical Data

CPU	■ Intel® Core™ i7-3517UE □ 1.7 GHz processor core frequency □ 2.8 GHz maximum turbo frequency ■ Chipset □ QM77 Platform Controller Hub (PCH)
Memory	■ 4 MB last level cache integrated in i7 processor ■ 4 GB SDRAM system memory □ Soldered □ DDR3 with ECC support □ Up to 1066 MHz memory bus frequency
Mass Storage	■ One SD card slot ■ One mSATA slot □ SATA Revision 3.x support □ Transfer rates up to 600 MB/s (6 Gbit/s) ■ Serial ATA (SATA) □ Two external shuttles for 2.5" SATA HDD/SSD drive □ SATA Revision 3.x support □ Transfer rates up to 600 MB/s (6 Gbit/s) □ Hot-pluggable (with independent devices) □ RAID 0/1 support □ Status LEDs
Graphics	■ Integrated in processor and chipset ■ Maximum resolution: 2560 x 1600 pixels ■ Via one DisplayPort® interface
Ethernet	■ 4-port Gigabit Ethernet switch □ Via four M12 connectors □ Usable as Power-over-Ethernet source devices (IEEE 802.3af / IEEE 802.3at, Type 1) □ Up to 35 W flexibly shared between the 4 ports: □ 1x 25 W PoE+ (Class 4) □ 2x 12.96 W (Class 3 / class 0) □ 4x 6.5 W (Class 2) ■ 1 Gigabit Ethernet uplink □ Via one M12 connector
Front I/O	■ 1 DisplayPort® 1.1a interface □ AUX channel and hot plug detection ■ 2 USB 2.0 □ Via Series A connector ■ 2 SA-Adapter slots for legacy serial I/O □ For RS232, RS422/485, CAN, IBIS master, IBIS slave, GPIO ■ 24 status LEDs □ 10 for Ethernet link and activity status □ 2 for general board status □ 4 user LEDs □ 8 SATA LEDs
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 ■ 2 SIM card slots (Dual SIM) ■ PCI Express® and USB interface
Real-Time Clock	■ Buffered by Gold Cap for up to 12 h

Technical Data

Electrical Specifications	■ Isolation voltage 1,500 VDC □ Ethernet port 1-4, Ethernet port 5, power input, ground/shield, USB interface, DisplayPort® interface, audio interface ■ Supply voltage: □ 24V and 36V nominal input voltage according to EN50155 □ 24V nominal input voltage according to ISO 7637-2 (E-mark) requirements □ 10 to 50.4 V input voltage range □ EN 50155 power interruption class S2 □ Ignition signal at the front ■ Power consumption: tbd
Mechanical Specifications	■ Dimensions: Height 66mm x Width 400mm x Length 240mm ■ Weight: approx. 4.25 kg ■ IP40 protection when installed with connectors down, connector side protected according to IP20
Environmental Specifications	■ Temperature range (operation): □ -40°C to 70°C (screened), with up to 85°C for 10 minutes according to class Tx (EN 50155) □ 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 (EN 61373) ■ Vibration (function): 1 m/s², 5 Hz - 150 Hz (EN 61373) ■ Vibration (lifetime): 7.9 m/s², 5 Hz - 150 Hz (EN 61373) ■ Conformal coating of internal components
MTBF	■ 267 047 h @ 40°C according to IEC/TR 62380 (RDF 2000)
Safety	■ Flammability □ PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers ■ Fire Protection according to EN 45545 ■ Electrical Safety □ Insulation measurement test according to EN 50155 (12.2.9.1) □ Voltage withstand test according to EN 50155 (12.2.9.2) □ Information technology equipment test according to EN 60950
EMC Conformity (Automotive)	■ Radiated Emission: 2004/104/EC, 2005/83/EC, CISPR 25, CISPR 16 ■ Conducted Emission (Power Line): 2004/104/EC; 2005/83/EC; ISO7637-2 ■ Conductive Immunity (Power line): 2004/104/EC; 2005/83/EC; according to ISO7637-2 ■ ESD: according to ISO 10605 ■ Radiation Immunity: ISO11452-5 ■ Prepared for certification according to ISO 7637-2 (E-mark) requirements
EMC Conformity (Railway)	■ EN 55011 (radio disturbance) ■ IEC 61000-4-2 (ESD) ■ IEC 61000-4-3 (electromagnetic field immunity) ■ IEC 61000-4-4 (burst) ■ IEC 61000-4-5 (surge) ■ EN 50121-3-2 (conducted HF immunity)
BIOS	■ InsydeH2O™ UEFI Framework
Software Support	■ Windows® 7 ■ Windows® Embedded Standard 7 ■ Windows® XP Embedded ■ Linux ■ For more information on supported operating system versions and drivers see Downloads.

Configuration & Options

Options

CPU	■ Intel® Core™ i7 (3rd gen) ■ Intel® Core™ i5 (3rd gen) ■ Intel® Core™ i3 (3rd gen) ■ Intel® Celeron® (2nd or 3rd gen)
Memory	■ System RAM □ 2 GB, 4 GB, 8 GB or 16 GB ■ SATA hard-disk/solid state drive (mounted within housing)
I/O	■ Ethernet □ Five Fast Ethernet interfaces on five M12 connectors or □ One Gigabit Ethernet uplink and four Fast Ethernet interfaces on five M12 connectors ■ HD audio interface □ HD audio codec □ Audio stereo in □ Audio stereo out □ SPDIF out ■ Antenna connectors □ Various types available on the market (SMA, reverse SMA, QMA, FME...) ■ SA-Adapters □ Serial interfaces: RS232, RS422/485, GPIO □ Fieldbus: IBIS master, IBIS slave, CAN bus
Miscellaneous	■ Real-time clock □ 72 h buffer time
Electrical Specifications	■ Input voltages of 48V, 72V and 110V can be implemented on request

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 BL70S Models	**09BL70S00**	BL70S, storage box computer prepared for 2 HDD/SDD shuttles, 24 VDC PSU, Intel® Core™ i7-3517UE, 1.7 GHz, 4 GB RAM, SD card slot, mSATA slot, 1x DisplayPort®, 1x Gb Ethernet and 4x Gb Ethernet with PoE via switch, 2 USB, 2x SA-Adapter slot (UARTs, fieldbuses), 1x PCI Express® Mini card slot, 2 x SIM card slots, -40..+70(+85)°C screened, conformal coating, IP40, EN 50155, ISO 7637-2 (E-mark)
Related Hardware	**08AE63-00**	DisplayPort® to LVDS converter, temperature sensor, ambient light, touch input, key control, input voltage 12V..24V, -40°..+85°C screened
Memory	**0710-0038**	HDD SATA 2.5", 100 GB, 1.5GB/s, 4200rpm, -10°..+70°C
	0710-0044	HDD SATA 2.5", 500 GB, 5400rpm, 0...+60°C, 100 x 70 x 6,8 mm, 24 hours / 7 days
	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
	0754-0008	SSD SATA 160 GB, MLC, 2,5", 0..+70°C
PCI Express® Mini Cards	**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
	0799-0006	WLAN PCIe® MiniCard DNXA-116, operating temperature 0°C..+80°C, storage temperature -40°..+85°CNote: 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 the Intel® website
	15PX01-00	GLONASS & GPS PCI Express® MiniCard (full size), 3-axis Gyro sensor, -40..+85°C with qualified components
	15PX04-01	Audio interface for mobile wireless cards, with SIM card holder, -40..+85°C screened, conformal coating
SA-Adapters	**08SA01-11**	RS232, not optically isolated, -40..+85°C screened, conformal coating
	08SA02-27	RS422/485, full duplex, optically isolated, -50°..+85°C screened, conformal coating
	08SA03-15	1 RS232, optically isolated, -40..+85°C screened, conformal coating
	08SA08-04	1 CAN interface, D-Sub connector, optically isolated, -40..+85° screened, conformal coating
	08SA15-05	8 digital I/O channels, -50..+85°C with qualified components, conformal coating, no RoHS
	08SA22-04	1 IBIS slave interface, isolated, -40..+85°C screened, conformal coating
	08SA24-03	1 intelligent IBIS master interface (extended format), isolated, -40..+85°C screened, conformal coating
	08SA25-01	GPS receiver, SMA antenna, isolated, -40..+85°C with qualified components, conformal coating

Ordering Information

Miscellaneous Accessories	**05BC00-00**	Starter Kit for BoxPC: 1x AC/DC power supply, 1x DisplayPort® to DVI adapter (active), 2x M12 to RJ45 Gbit Ethernet cable, 4x HF cable with U.FL plug to RP-SMA plug
	05BL00-00	2.5" shuttle mechanics for BoxPCs; HDD/SSD to be ordered separately
	05BL01-00	Mechanical kit for BL-type box PCs; 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
Software: Linux	This product is designed to work under Linux. See below for all available separate software packages.	
	13MM02-90	Linux driver (MEN) for RX8581 real-time clock for CB70C, F75P, MM2 and SC24
	13SC24-90	Linux I2C controller driver (MEN) for SC24, AE51, BC50M, BC50I and BL50W
	13XM01-06	MDIS5 low-level driver sources (MEN) for XM1, XM1L, MM1, MM2, XM2, CB70C, F11S, F19P, F21P, F22P, G20, G22, SC21, SC27 and DC2 board controller
	13Y004-06	MDIS5 low-level driver sources (MEN) for generic SMBus driver for F14, F15, F17, F18, F19P, F21P, F22P, G20, G22, D9, D601, F600 and F601, A19, A20, F217, CB70C, SC24, BC50M, BC50I and BL50W
	13Z010-06	MDIS4/2004 / MDIS5 low-level driver sources (MEN) for 16Z076_QSPI
	13Z015-06	MDIS5 low-level driver sources (MEN) for 16Z029_CAN (MSCAN/Layer2)
	13Z016-06	MDIS5 driver (MEN) for 16Z029_CAN (CANopen master)
	13Z017-06	MDIS5 low-level driver sources (MEN) for 16Z034_GPIO, 16Z037_GPIO and 16Z127_GPIO
Software: Windows®	This product is designed to work under Windows®. See below for all available separate software packages.	
	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, BC50I, BC50M and BL50W
	10Y000-78	Windows® Embedded Standard 7 BSP for F11S, F19P, F21P, F22P, G20, G22, XM1L, XM2, MM1, MM2, SC21, SC24, SC27, BC50M, BC50I, BL50W, BL50S, DC13, F206, F210, F215, F216, G215, P506, P507 and P511
	13T010-70	Windows® 32-bit network driver (Intel®) for XM1, XM1L, XM2, MM2, CB70C, F11S, F18, F18E, F19P, F21P, F22P, G20, G22, GM1, GM2, GM3, G211, G211F, SC24, BC50I, BC50M and BL50W
	13T020-70	Windows® 64-bit network driver (Intel®) for F18, F18E, F19P, F21P, F22P, G20, G22, GM1, GM2, GM3, G211, G211F, XM2, CB70C, SC24, BC50I, BC50M and BL50W
	13Z010-70	MDIS5 Windows® driver (MEN) for 16Z076_QSPI devices
	13Z015-70	MDIS4/2004 / MDIS5 Windows® driver (MEN) for 16Z029_CAN (MSCAN/Layer2)
	13Z016-70	MDIS5 Windows® driver (MEN) for 16Z029_CAN (CANopen master)
	13Z017-70	MDIS4/2004 / MDIS5 Windows® driver (MEN) for 16Z034_GPIO devices

For operating systems not mentioned here contact MEN sales.

Documentation	Compare Chart Standard and Custom Box 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 SAS
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.
860 Penllyn Blue Bell Pike
Blue Bell, PA 19422
Phone (215) 542-9575
Fax (215) 542-9577

sales@menmicro.com
www.menmicro.com