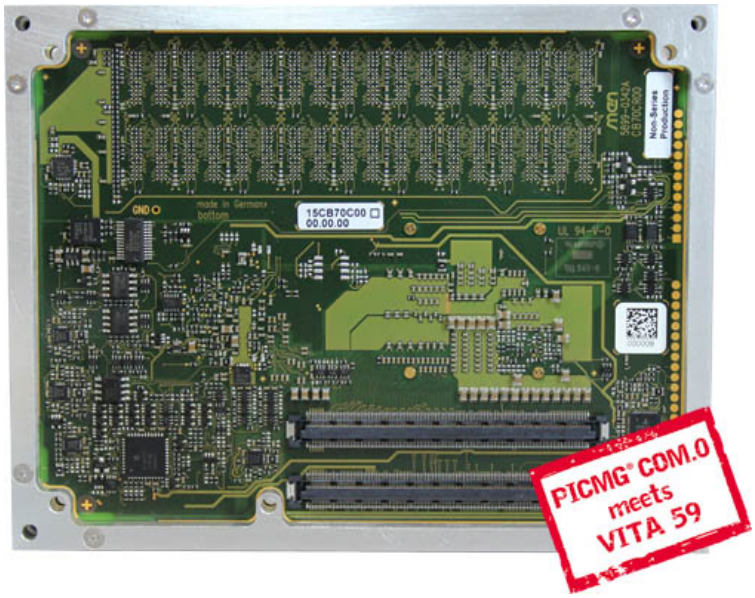
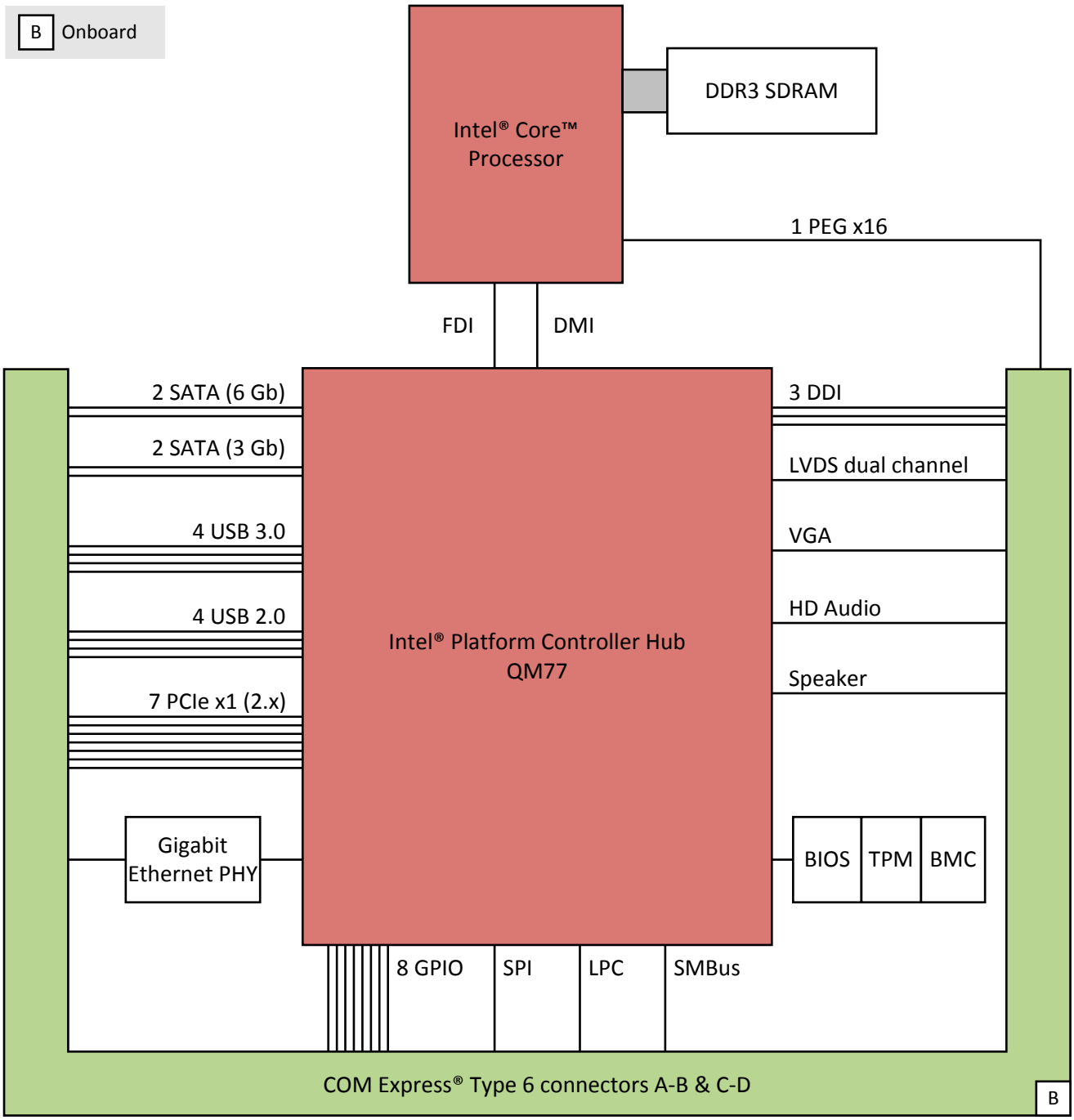
CB70C – Rugged COM Express (VITA 59 RCE) with Intel Core i7

- **Intel Core i7, 3rd generation**
- **Quad-core 64-bit processor**
- **Up to 16 GB DDR3 DRAM, ECC, soldered**
- **Board Management Control**
- **Active Management Technology**
- **Open CL 1.1 support**
- **9 V to 16 V extended input range**
- **-40°C to +85°C Tcase screened, depending on processor**
- **Conduction cooling**
- **VITA 59 in process, compliant with COM Express Basic, type 6**
- **PICMG COM.0 COM Express version also available**



The CB70C is a member of a new family of Rugged COM Express modules which is controlled by a third generation Intel Core i7 processor running at up to 3.1 GHz maximum turbo frequency bringing state-of-the-art PC technology onto a small form factor. This means a scalable performance with 1 up to 4 cores, integrated graphics, as well as support of Intel AMT or Open CL 1.1.
The board can be controlled using a Board Management Controller and an adaptable BIOS which ensures flexibility in tailoring the complete system for the final application. Intel AMT support is actively integrated in the BIOS adaptation.
The modules are 100% compatible to COM Express modules of Pin-out Type 6. They conform to the new VITA-59 standard which specifies the mechanics to make COM Express modules suitable for operation in harsh environments.
The modules are embedded in a covered frame ensuring EMC protection and allowing efficient conductive cooling. Air cooling is also possible by applying a heat sink on top of the cover.
The CB70C accommodates up to 16 GB of directly soldered main memory and supports other memory like USB Flash on the carrier board.
The interfaces include a combination of PCI Express links, LVDS, DDI, VGA, high-definition audio, SATA, Ethernet and USB.
The CB70C is screened for operation from -40°C to +85°C (Tcase). Only soldered components are used to withstand shock and vibration, and the design is optimized for conformal coating.
For evaluation and development purposes a microATX carrier board, the XC15, is available.

Diagram


B Onboard
Intel® Core™ Processor
DDR3 SDRAM
1 PEG x16
FDI
DMI
2 SATA (6 Gb)
2 SATA (3 Gb)
4 USB 3.0
4 USB 2.0
7 PCIe x1 (2.x)
Intel® Platform Controller Hub QM77
3 DDI
LVDS dual channel
VGA
HD Audio
Speaker
Gigabit Ethernet PHY
BIOS
TPM
BMC
8 GPIO
SPI
LPC
SMBus
COM Express® Type 6 connectors A-B & C-D
B

Technical Data

CPU	■ The following CPU types are available: □ Intel Core i7 (3rd gen) □ Intel Core i5 (3rd gen) □ Intel Core i3 (3rd gen) □ Intel Celeron (2nd or 3rd gen) ■ Chipset □ Intel Core i7-3612QE (QM77 Platform Controller Hub (PCH)) ■ For more details please see the overview matrix of supported processor types.
Memory	■ System Memory □ Soldered DDR3 □ 2 GB, 4 GB, 8 GB or 16 GB ■ Boot Flash □ 16 MB
Graphics	■ Integrated in processor and chipset ■ Maximum resolution: 2560 x 1600 pixels
Onboard Interfaces	■ Available via COM Express connectors ■ Video □ One x16 link (PCI Express graphics) □ One VGA □ Three DDI ports for DP, HDMI, DVI, SDVO □ One LVDS dual channel up to 48-bit RGB ■ Audio □ HD audio ■ Serial ATA (SATA) □ Two ports with SATA Revision 2.x support; transfer rates up to 300 MB/s (3 Gbit/s) □ Two ports with SATA Revision 3.x support; transfer rates up to 600 MB/s (6 Gbit/s) □ RAID level 0/1/5/10 support ■ USB □ Four USB 3.0 host ports, xHCI implementation, data rate up to 5 Gbit/s □ Four USB 2.0 host ports, EHCI implementation, data rates up to 480 Mbit/s ■ Ethernet □ One 10/100/1000Base-T Ethernet channel □ Three LED signals for LAN link, activity status and connection speed ■ PCI Express □ Seven x1 links (up to 500 MB/s in each direction), PCIe 2.x (5 Gbit/s per lane) ■ GPIO □ 8 lines ■ SMBus interface ■ LPC ■ SPI ■ Speaker
Supervision and Control	■ Input voltage supervision ■ Power sequencing ■ Board monitoring ■ Watchdog ■ Accessible via SMBus ■ Real-time clock, with supercapacitor or battery backup on the carrier board
Computer-On-Module Standard	■ CB70C: VITA 59 RCE: Rugged COM Express in process □ With conduction cooling cover and frame □ Rugged COM Express Basic, Module Pin-out Type 6 ■ CB70: PICMG COM.0 COM Express Module Base Specification □ Without conduction cooling wings, without cover and frame □ COM Express Basic (135 mm x 105 mm), Module Pin-out Type 6

Technical Data

Electrical Specifications	■ Supply voltage □ +12V (9 to 16 V) □ +5V (-5%/+5%) standby voltage ■ Power consumption □ 48 W typ./ 70 W max. □ 1.1 W in standby operation
Mechanical Specifications	■ Dimensions: □ 135 mm x 105 mm x 18 mm (height) (conforming to VITA 59 RCE Basic format), PCB mounted between a cover and a frame (model 15CB70C00/15CB70C01) □ 125 mm x 95 mm (conforming to PICMG COM.0 COM Express Basic format) (model 15CB70-00) ■ Weight: □ 460 g (model 15CB70C00/15CB70C01) □ 90 g (model 15CB70-00)
Environmental Specifications	■ Temperature range (operation): -40..+85°C Tcase (Rugged COM Express cover/frame) (screened) ■ Temperature range (storage): -40..+85°C ■ Cooling Concept □ Conduction-cooled versions according to VITA 59 RCE: Rugged COM Express in process □ Air-cooled versions according to PICMG COM.0 COM Express standard ■ 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 - 150 Hz (EN 61373) ■ Vibration (lifetime): 7.9 m/s², 5 Hz - 150 Hz (EN 61373) ■ Conformal coating on request
Reliability	■ MTBF □ 415 714 h @ 40°C according to IEC/TR 62380 (RDF 2000)
Safety	■ Flammability □ UL 94V-0
EMC	■ EMC behavior depends on the system and housing surrounding the COM Express module. ■ The Rugged COM Express module in its cover and frame supports the system to meet the requirements of □ EN 55022 (radio disturbance) □ IEC 61000-4-2 (ESD) □ IEC 61000-4-3 (electromagnetic field immunity) □ IEC 61000-4-4 (burst) □ IEC 61000-4-5 (surge) □ IEC 61000-4-6 (conducted disturbances)
Software Support	■ Windows ■ Linux ■ For more information on supported operating system versions and drivers see Software.
BIOS	■ InsydeH2O UEFI Framework

Up-to-date information, documentation and ordering information: www.men.de/products/cb70c/

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