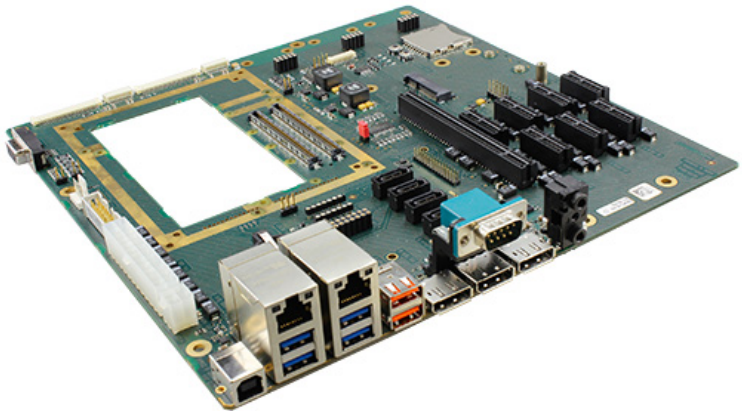
XC15 – Rugged COM Express® Evaluation Carrier Board

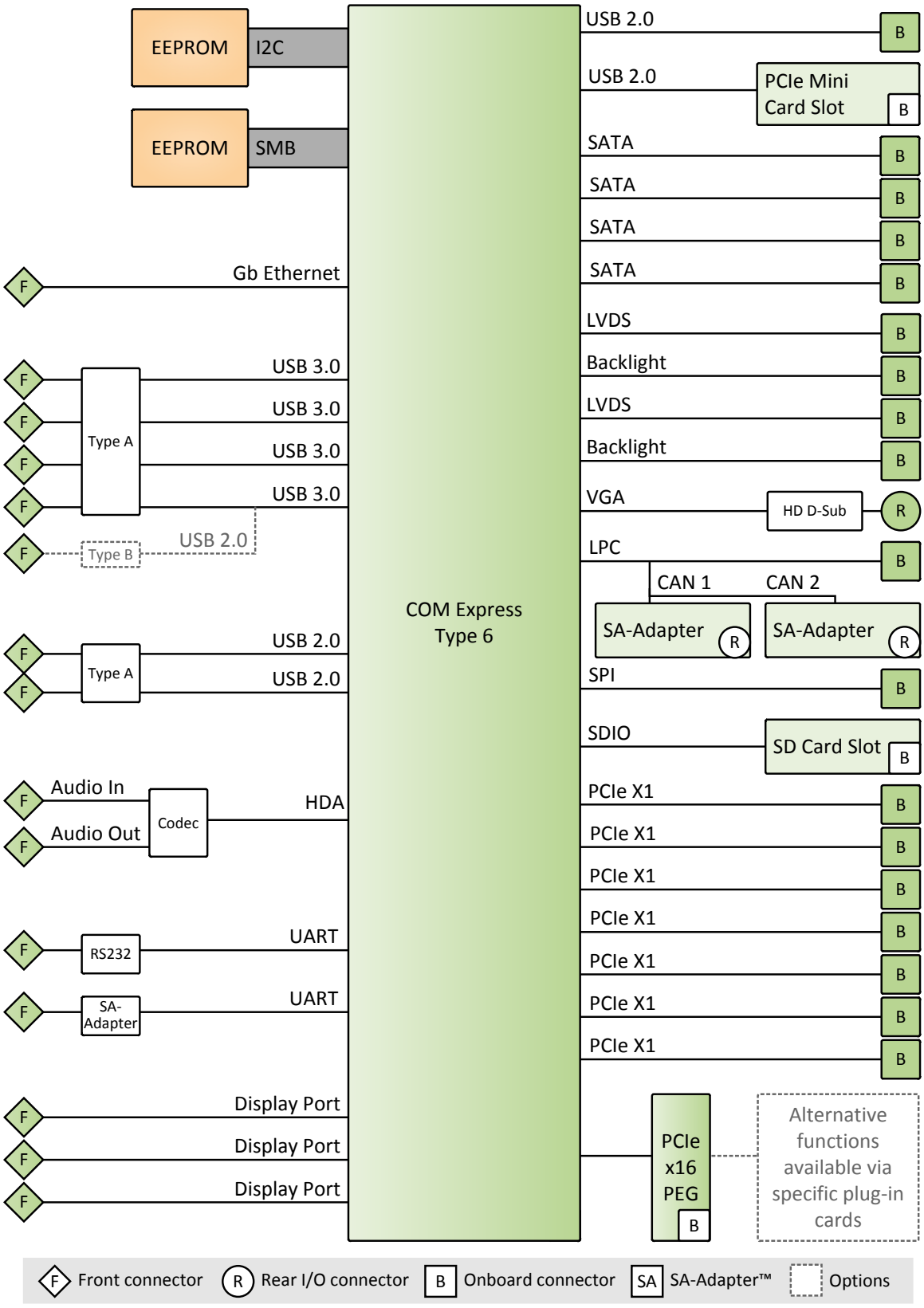
- **microATX form factor**
- **1 Rugged COM Express® slot**
- **8 PCI Express® connectors**
- **4 SATA connectors**
- **3 Display ports**
- **LVDS, VGA**
- **HD audio**
- **1 Gb Ethernet**
- **4 USB 3.0**
- **2 USB 2.0**
- **2 CAN connectors**



Rugged COM Express®, based on PICMG standard COM.0 or COM Express®, has been developed for demanding embedded applications with extended requirements for thermal design, shock, vibration and EMC. Rugged COM Express®, together with an application-specific carrier board, forms a semi-custom solution which is suited for application in extremely harsh, mobile and mission-critical environments.

The XC15 is an evaluation and development platform that can be used together with any type of Rugged COM Express® module. The XC15 provides physical interfaces and connectors for nearly all current serial standard I/Os, which can be routed from the COM Express® connectors to the carrier board. The XC15 comes with one COM Express® slot and eight PCI Express® card slots, including an onboard PCI Express® Graphics (PEG) interface on a standard PCIe® x16 connector. In addition, it provides three display ports, four onboard SATA connectors, two LVDS and two CAN interfaces which are available via SA-Adapters. The functionality of all connectors depends on the Rugged COM Express® module used on the XC15. It supports the Micro ATX form factor and can therefore operate in a PC system. Additional USB ports on the front panel for USB driven Flash disks for application storage, complement the memory configuration that is already available on the different COM Express® modules.
For a first evaluation of the functions and performance of the Rugged COM Express® module of choice, we strongly recommend using the XC15. Further useful accessories include an external PSU, a heat sink and fan, a DisplayPort® to DVI adapter, and cables for UART and SATA HD.

Diagram


EEPROM
I2C
EEPROM
SMB
Gb Ethernet
USB 3.0
USB 3.0
USB 3.0
USB 3.0
Type A
USB 2.0
Type B
USB 2.0
USB 2.0
Type A
Audio In
Audio Out
Codec
HDA
UART
RS232
UART
SA-Adapter
Display Port
Display Port
Display Port
COM Express
Type 6
USB 2.0
USB 2.0
PCIe Mini Card Slot
SATA
SATA
SATA
SATA
LVDS
Backlight
LVDS
Backlight
VGA
HD D-Sub
LPC
CAN 1
CAN 2
SA-Adapter
SA-Adapter
SPI
SDIO
SD Card Slot
PCIe X1
PCIe X1
PCIe X1
PCIe X1
PCIe X1
PCIe X1
PCIe X1
PCIe x16 PEG
Alternative functions available via specific plug-in cards
Front connector
Rear I/O connector
Onboard connector
SA-Adapter™
Options

Technical Data

Rugged COM Express® Carrier Card	■ One COM Express® slot ■ Type 6 pin assignment ■ J1 and J2 assembled ■ Supported Rugged COM Express® and COM Express® form factors: □ Basic □ Compact □ Mini
Graphics	■ Two LVDS connectors □ For direct LVDS display connection ■ Three DisplayPort® connectors ■ One VGA connector
I/O	■ PCI Express® □ Seven PCIe® x1 connectors □ One PCIe® Graphics interface (PEG) - Routed to a standard PCIe® x16 connector □ One PCIe® MiniCard slot ■ USB □ Four USB 3.0 ports on type A connectors □ Two USB 2.0 ports on type A connectors □ One USB 2.0 OTG port on a type B connector (optional, routed through a USB 3.0 port) ■ Gigabit Ethernet □ One interface on an RJ45 connector ■ Audio □ Audio in on a 3.5 mm audio jack □ Audio out on a 3.5 mm audio jack ■ UART □ One RS232 9-pin D-Sub connector □ One SA adapter slot ■ LPC/CAN □ One LPC interface, or alternatively □ Two CAN interfaces via SA-Adapters
Mass Storage	■ One SD card slot ■ Four onboard SATA connectors □ Powered by the ATX power supply
Miscellaneous	■ SPI onboard RM2.0 header ■ Fan Supply □ 4-pin header □ Controllable fan speed ■ Battery holder ■ Power on button ■ Reset button ■ System LEDs □ Indicate power, system health and reset status ■ User LEDs □ Eight user LEDs controlled by GPIOs
Electrical Specifications	■ Supply voltage/power consumption: □ ATX standard power supply via 24-pin connector □ 12 V supply for PCIe® connectors via additional 4-pin connector ■ MTBF: tbd
Mechanical Specifications	■ Dimensions: 244 mm x 244 mm (conforming to Micro ATX standard) ■ Weight: 495 g (without COM express module)

Technical Data

Environmental Specifications	■ Temperature range (operation): -40..+85°C ■ Airflow: depending on Rugged COM Express® module ■ Temperature range (storage): -40..+85°C ■ Relative humidity (operation): max. 95% non-condensing ■ Relative humidity (storage): max. 95% non-condensing ■ Altitude: -300 m to + 2.000 m ■ Bump: 10g/16ms
Safety	■ PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers

Ordering Information

Standard XC15 Models	**08XC15-00**	XC15, evaluation and development board for COM Express® and Rugged COM Express® (VITA-59) modules
Related Hardware	**15CB70C00**	Rugged COM Express® "Basic", type 6, Intel® i7-3612QE, 2.1 GHz, 8 GB RAM, -40..+85°C Tcase screened; with VITA-59 conduction cooling frame
	15CB70C01	Rugged COM Express® "Basic", type 6, Intel® Celeron® 827E, 1.4. GHz, 2 GB RAM, -40..+85°C Tcase screened; with VITA-59 conduction cooling frame
	15CC10C00	Rugged COM Express® "Compact", type 6, Freescale™ i.MX6Q, 1 GHz, 2 GB RAM, 4 GB eMMC, 6 USB, 1 Gb Ethernet, 1 Fast Ethernet, PCIe® 1.1, with FPGA, -40..+85°C Tcase with qualified components; with VITA 59 conduction cooling frame
Memory	**0710-0047**	HDD SATA 2.5", 160GB, 0..60°C
SA-Adapters	**08SA01-00**	RS232, not optically isolated, 0..+60°C
	08SA02-00	RS422/485, half duplex, optically isolated, 0..+60°C
	08SA03-00	1 RS232, optically isolated, 0..+60°C
	08SA08-00	CAN ISO high-speed, optically isolated, 0..+60°C
Miscellaneous Accessories	**0712-0019**	Standard ATX PSU, 350 W, 0..+40°C
	0780-0005	DisplayPort® to DVI-D adapter, 20 cm
Documentation	You can find the official COM Express® Carrier Design Guide directly on www.picmg.org.	
	20XC15-00	XC15 User Manual

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