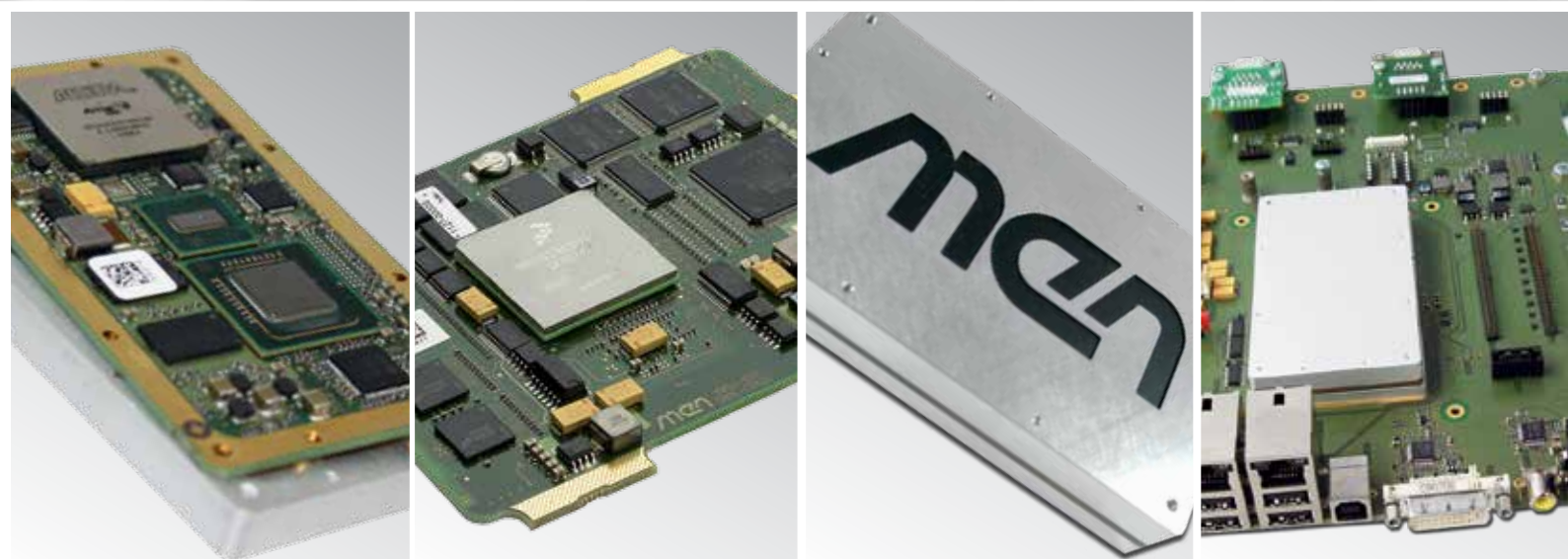


mcNEWS *special*

Extremely Rugged Computer-on-Modules

Powerful Small Form Factors for
Harsh Embedded Environments



Computer-on-Modules

Computer-On-Modules (COMs) are complete computers on a plug-on module, perfectly suited for demanding mobile and space-saving applications. Mobile applications are found in areas as diverse as transportation, medical engineering, commercial vehicles and ships and also in a growing number of cranes, construction machinery, trucks and tractors which are equipped with small, robust human-machine interfaces.

ESMexpress® sets out to make COMs a stable, cost-effective solution for a wider number of areas by addressing mechanical stability, rugged physical performance, and aggressive fanless cooling. To achieve this, the populated PCB is mounted into an aluminum frame, which completely encloses the assembly. This allows for conduction and convection cooling and enables power dissipation of up to 35 W. ESMexpress® is not limited to the -40°C to +85°C operating range, but can offer performance up to -55°C through +125°C.

Our ESMexpress® and ESMini® small form factor boards are available in two different sizes – 95 x 125 mm or the even smaller 95 x 55 mm format. Although they are very compact and highly integrated, these rugged COM modules easily handle complex CPUs, including multi-core technology.



PowerPC-based ESMexpress® Modules

XM51 – ESMexpress® COM with PowerPC® QorIQ™ P4080

- Freescale™ QorIQ™ P4080, P4040 or P3041
- 64-bit Power Architecture e500mc CPU
- Up to 8 cores, up to 1.5 GHz
- Up to 16 GB ECC DDR3 SDRAM, 1 or 2 controllers
- -40°C to +85°C Tcase with qualified components



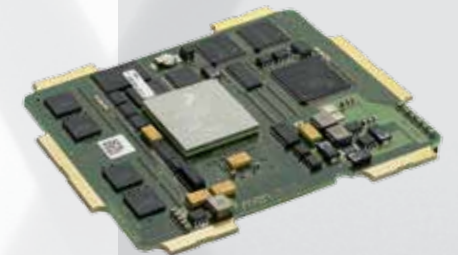
The XM51 is based on the Freescale™ PowerPC® QorIQ™ and runs at frequencies between 1.2 and 1.5 GHz. Depending on the individual needs, up to eight processor cores, 16 GB ECC DDR3 SDRAM, 128 KB FRAM and 256 MB Flash are available.

Interfaces include four USB 2.0 host ports and one USB client, two Gigabit Ethernet channels, dual 3-Gbit SATA, and two PCI Express® x1 links.

Read more: www.men.de/000453

XM50 – ESMexpress® COM with PowerPC® MPC8548

- MPC8548 (or MPC8543), up to 1.5 GHz
- Up to 2 GB (ECC) DDR2 SDRAM
- 3 (or 2) Gb Ethernet ports
- Gb Ethernet, USB, SATA, PCI Express® x8
- -40°C to +85°C Tcase screened



The XM50 come with the powerful and yet power-saving processor of the PowerQUICC™ III family with an e500 core, MMU, FPU and 512 KB L2 cache and with a number of high-performance communication interfaces.

Interfaces include up to three Gigabit Ethernet channels, eight PCI Express® lanes for one link, triple SATA, six USB host ports and one USB client realized using a UART-to-USB converter.

Read more: www.men.de/000454

Intel®-based ESMexpress® Modules



XM1L – ESMexpress® COM with Intel® Atom™ XL

- Intel® Atom™ Z510P, Z530P, Z510PT, Z520PT
- Up to 2 GB DDR2 SDRAM
- Up to 2 PCI Express®
- Up to 1 Gb Ethernet
- 1 SATA port, 8 USB 2.0
- SDVO, LVDS, Intel® HD Audio
- -40°C to +85°C Tcase screened or qualified

The XM1L is controlled by the Intel® Atom™ XL processor, an IA-32 core based on 45nm process technology. Due to the power architecture of the Intel® Atom™ CPU, the XM1L has a total power consumption of max. 5 to 7 W, while having a clock frequency of up to 1.6 GHz. Interfaces include a combination of PCI Express® links, LVDS, SDVO, high-definition audio, SATA, Ethernet with wake-on-LAN functionality, and USB.

Read more: www.men.de/000456



XM2 – ESMexpress® COM with Intel® Core™ 2 Duo

- Intel® Core™ 2 Duo up to 2.26 GHz
- Up to 4 GB DDR SDRAM
- 1 x16 PCI Express® Graphics link, 4 x1 PCI Express® links
- 2 Gb Ethernet, 3 SATA ports, 8 USB 2.0
- Up to 2 SDVO ports, Intel® HD Audio
- 0°C to +85°C Tcase screened

Controlled by an Intel® Core™ 2 Duo CPU, the XM2 comes with a total power consumption of up to 40 W. The GS45 graphics controller supports x16 PCI Express® Graphics or up to two SDVO interfaces or DisplayPort® (three ports) or two HDMI ports. In addition, four x1 or one x4 PCI Express® links, two Gigabit Ethernet channels, eight USB ports, three SATA ports, and one HD audio port are supported by the XM2.

Read more: www.men.de/000457

ESMini™ Modules



MM50 – ESMini™ COM with MPC5121e/MPC5123

- MPC5121e or MPC5123, up to 400 MHz
- Up to 512 MB DDR2 SDRAM
- 1 Fast Ethernet interface
- 6 USB 2.0 (1 client), 2 UARTs, up to 4 CAN bus
- 6 programmable serial controllers, or display interface
- AC'97 audio
- -40°C to +85°C screened

The MM50 is controlled by the PowerPC® MPC5121e or MPC5123 with a power consumption of less than 3 W and is optimized for mobile applications. With its integrated I/O features and powerful graphics engine, it pairs advanced video features with low power and excellent price/performance. Besides modern serial I/O, it also provides legacy I/O, while its display interface and AC'97 audio gear the MM50 for multimedia applications.

Read more: www.men.de/000459



MM2 – ESMini™ COM with Intel® Atom™ E600 Series

- Intel® Atom™ E600 series, up to 1.6 GHz
- Up to 2 GB DDR2 SDRAM
- 2 PCI Express®
- 2 Gb Ethernet interfaces
- 6 USB 2.0 hosts and 1 USB 2.0 client
- 4 UARTs, 1 CAN bus, 2 SATA ports
- -40°C to +85°C Tcase (screened or with qualified components)

The MM2 comes with an Intel® Atom™ processor from the E6xx series which offers high I/O flexibility as it uses the PCI Express® standard for the processor-to-chipset interface. The MM2 has a total power consumption of max. 5 to 7 W. The MM2 offers a multitude of modern serial and also legacy I/O. The MM2 is completed by a board management controller for temperature and power supervision.

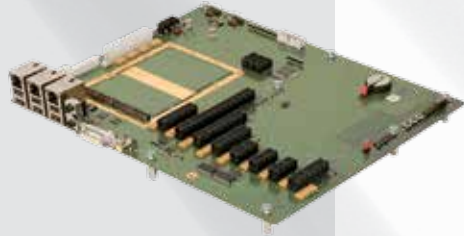
Read more: www.men.de/000460



MM1 – ESMini™ COM with Intel® Atom™

- Intel® Atom™ Z530 or Z510, up to 1.6 GHz
- Up to 1 GB DDR2 SDRAM
- 1 PCI Express®
- Up to 2 Fast Ethernet interfaces
- 8 USB 2.0 (1 client)
- 2 UARTs, up to 2 CAN bus interfaces
- SDVO, LVDS, Intel® HD Audio
- -40°C to +85°C Tcase screened (-25°C to +85°C Tcase with 1 GB DRAM)

Read more: www.men.de/000461



XC1 – ESMexpress® COM Evaluation Carrier Board

- ATX form factor
- 1 ESMexpress® slot
- 8 PCI Express® connectors
- 4 GB USB Flash, 3 SATA, 6 USB 2.0
- LVDS, DVI, HD audio
- 3 Gb Ethernet

Read more: www.men.de/000455



XC2 – ESMexpress® COM Carrier Board for Intelligent Displays

- 1 ESMexpress® slot
- 4 GB USB Flash disk
- PCI Express® Mini Card slot
- LVDS on board, second LVDS or DVI-D optional
- 2 Fast Ethernet on M12, 2 USB 2.0
- SA-Adapter™ slot for UART (COM)
- -40°C to +85°C with qualified components

Read more: www.men.de/000458



XC6 – ESMini™ COM Carrier Board for 3.5" PCs

- 1 ESMini™ computer-on-module slot
- 2 Fast Ethernet, 4 USB 2.0, 1 UART
- DVI-I, audio I/O, TTY
- PCI Express® Mini Card slot and SIM card holder
- USB Flash disk slot
- -40°C to +85°C screened

Read more: www.men.de/000462

EM1A – Embedded System Module COM with MPC5200B, no front I/O

- MPC5200B / 384 MHz
- FPGA 18,752 LEs (225,000 gates)
- 2 MB SRAM, 16 MB additional SDRAM
- Dual Ethernet, COM, USB 1.1, dual CAN controller
- User defined I/O functions optional via FPGA
- -40 to +85°C with qualified components

Read more: www.men.de/000463



EM1N – Embedded System Module COM with MPC5200B, with front I/O

- MPC5200B / 384 MHz
- FPGA 18,752 LEs (225,000 gates)
- 2 MB SRAM, 16 MB additional SDRAM
- Dual Ethernet, COM, USB 1.1 (front), dual CAN (carrier)
- Stackable with PCI-104
- 40 to +85°C with qualified components

Read more: www.men.de/000464



EM9 – Embedded System Module COM with MPC8548, with front I/O

- MPC8548 (or MPC8543), up to 1.5 GHz
- FPGA 33,216 LEs
- Up to 2 GB onboard DDR2 SDRAM
- 3 (or 2) Gb Ethernet, 1 COM (RJ45)
- Stackable with PCI-104
- -40 to +85°C screened

Read more: www.men.de/000465



EM9A – Embedded System Module COM with MPC8548, no front I/O

- MPC8548 (or MPC8543), up to 1.5 GHz
- FPGA 33,216 LEs
- Up to 2 GB onboard DDR2 SDRAM
- 3 Gb Ethernet, 2 COM (J3 onboard connector)
- User defined I/O functions optional via FPGA
- -40 to +85°C screened

Read more: www.men.de/000466





Learn more about
Computer-on-Modules!
www.men.de/000452

www.men.de