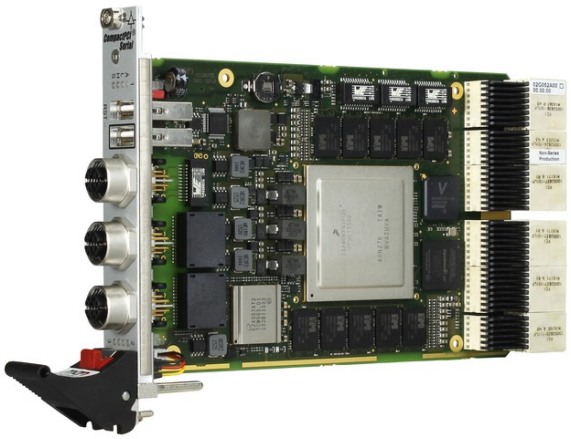
G52A

Embedded Single Board Computer with QorIQ T4x series

3U CompactPCI Serial

- *NXP QorIQ, up to 12 cores*
- *Up to 12 GB DDR3 DRAM soldered, ECC*
- *Standard front I/O: 2 10 Gb Ethernet, 1 Gb Ethernet, 1 USB 2.0 host, 1 USB configuration port (RS232)*
- *Standard rear I/O: 14 PCIe lanes, 1 USB 2.0, 2 SATA, 3 Gb Ethernet*
- *PICMG CPCI-S.0 CompactPCI Serial*
- *CPU TDP from 32 W to 61 W*
- *-40 °C to +85 °C operating temperature*



New Generation of CPU Boards

The G52A is a high-performance multicore CPU platform based on NXP (formerly Freescale) QorIQ T4x series. The G52A is a new branch of CPU boards for CompactPCI Serial specifically designed for high data bandwidth based on PCIe 3.0, PCIe 2.0 and Gigabit Ethernet via the backplane. The G52A provides high data bandwidth on the front panel via two 10 Gigabit Ethernet interfaces on M12 connectors or on RJ45 connectors (on request). The G52A paired with I/O cards can be ideally used for transferring data from and to storage media, the Internet via LTE, WiFi, copper or optical Ethernet. Its up to 12 processor cores make the board ideally suited for virtualization applications. Serial interfaces at the rear I/O connectors are one USB 2.0, two SATA interfaces, three PCI Express x4 links and one PCI Express x2 link and three Gigabit Ethernet interfaces.

Three-channel DDR3 DRAM

The memory configuration of the G52A includes a fast DDR3 DRAM with ECC which is soldered to the board to guarantee optimum shock and vibration resistance. A microSD card device offers space for user applications or can be used as a local boot medium.

Board Supervision

The G52A features thermal supervision of the processor and a watchdog for the operating system.

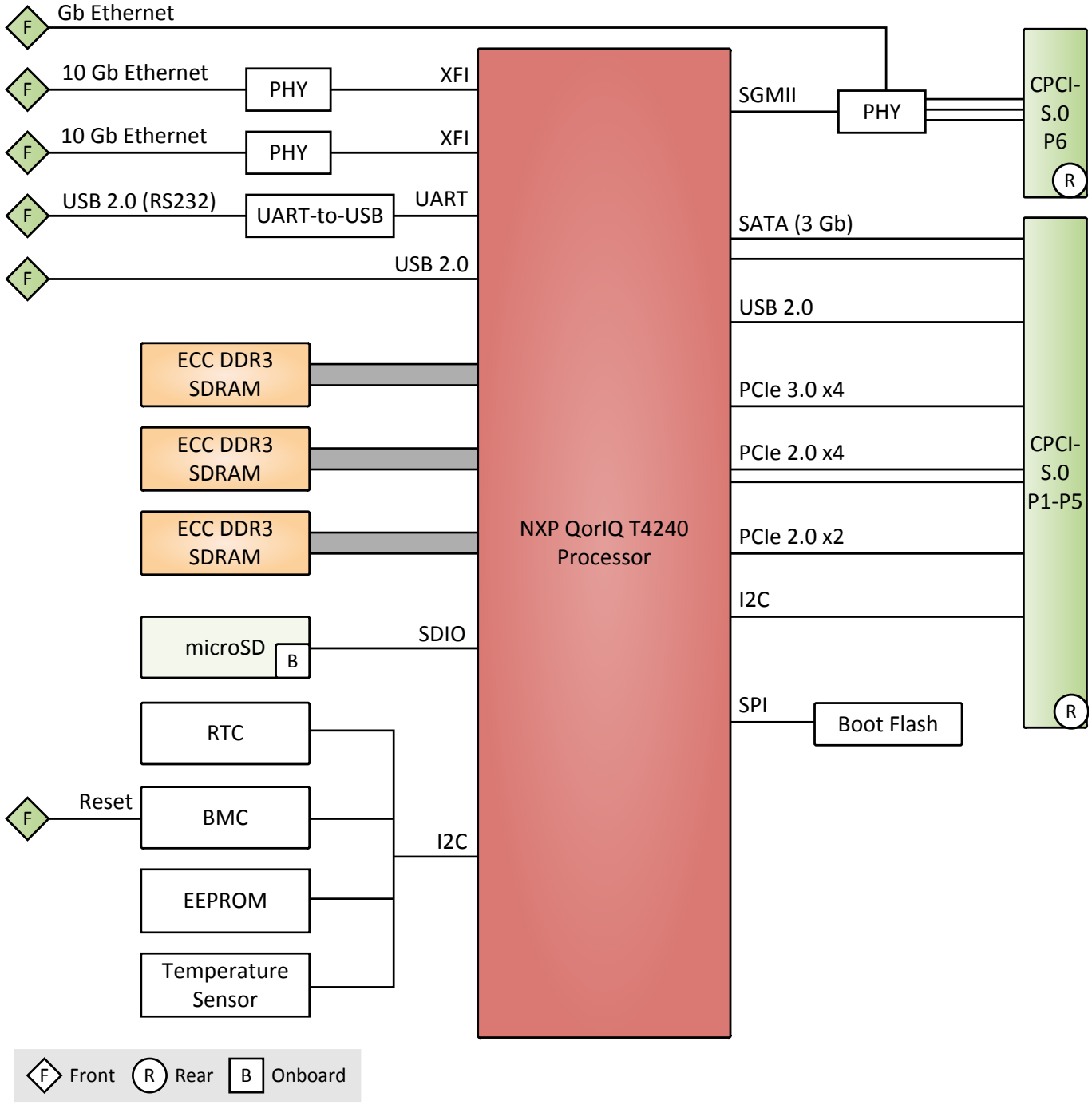
Perfect for Harsh Environments

The G52A comes with a tailored heat sink within 4 HP height. All components are soldered for protection against shock and vibration according to applicable DIN, EN or IEC industry standards. The G52A is also ready for coating so that it can be used in humid and dusty environments and has a guaranteed minimum standard availability of 15 years. These features make the G52A perfectly suited for harsh environments.

Software

The G52A operates in Linux environments or as a development option in VxWorks or QNX environments.

Data Sheet


Gb Ethernet
10 Gb Ethernet
PHY
XFI
10 Gb Ethernet
PHY
XFI
USB 2.0 (RS232)
UART-to-USB
UART
USB 2.0
ECC DDR3 SDRAM
ECC DDR3 SDRAM
ECC DDR3 SDRAM
microSD
B
SDIO
RTC
Reset
BMC
I2C
EEPROM
Temperature Sensor
NXP QorIQ T4240 Processor
SGMII
PHY
CPCI-S.0 P6
R
SATA (3 Gb)
USB 2.0
PCIe 3.0 x4
PCIe 2.0 x4
PCIe 2.0 x2
I2C
SPI
Boot Flash
CPCI-S.0 P1-P5
R
F Front
R Rear
B Onboard

Diagram

CPU

- The following CPU types are supported:
  - NXP QorIQ T4240, 12 cores, 1.5 GHz
  - NXP QorIQ T4160, 8 cores, 1.5 GHz
  - NXP QorIQ T4080, 4 cores, 1.5 GHz

Memory

- System RAM
  - Soldered DDR3, ECC
  - 12 GB max.

Mass Storage

- The following mass storage devices can be assembled:
  - microSD card (32 GB max.)

Interfaces

- SATA
  - 2x SATA Revision 2.x, backplane
- USB
  - 1x USB 2.0, Type A
  - 1x USB 2.0, backplane
  - 1x USB-to-UART, Type A
- Ethernet
  - 2x 10GBASE-T, M12, X-coded,8-pin
  - 2x 10GBASE-T, RJ45
  - 1x 10/100/1000BASE-T, M12, X-coded, 8-pin
  - 1x 10/100/1000BASE-T, RJ45
  - 3x 10/100/1000BASE-T, backplane
- PCI Express
  - 2x PCIe 2.0, x4, backplane
  - 1x PCIe 2.0, x2, backplane
  - 1x PCIe 3.0, x4, backplane
- Reset
  - 1x, reset button
- LED
  - Status: board status (BMC)
  - Ethernet: activity, link
  - CPCI hot-plug

Supervision and Control

- Board management controller
- Temperature measurement
- Watchdog timer
- Real-time clock, buffered by supercapacitor (96 hours)

Product Standard

- CompactPCI Serial: CompactPCI Serial PICMG CPCI-S.0 Specification

Electrical Specifications

- Supply voltage
  - +12 V (9.5 to 15.5 V)
- Power consumption
  - 96 W max., 48 W nom., with T4240 CPU (model 02G052A00)

Mechanical Specifications

- Dimensions
  - 3U, 4 HP
- Weight: approx. 266 g (model 02G052A00)
- Cooling
  - Air cooling, forced convection, airflow 2.5 m/s

Product Compliance: Rail - Rolling Stock

- Operating temperature: -40 °C to +55 °C (EN 50155:2007, class T2, control cabinet)
- Storage temperature: -40 °C to +85 °C (EN 60068-2-1:2007, Ab; EN 60068-2-2:2007, Bb)
- Altitude: -300 m to +3000 m
- Humidity: +55 °C and +25 °C, 90 % to 100 % RH (EN 50155:2007)
- Shock: 50 m/s2 / 30 ms (EN 61373:2010, vehicle body, cat. 1, class B)
- Vibration: 50 m/s2 / 30 ms (EN 61373:2010, vehicle body, cat. 1, class B)
- Electrical Safety
  - EN 50153:2014
  - EN 50155:2007
- EMC emission
  - EN 50121-3-2:2015
- EMC immunity: EN 50121-3-2:2015

Product Compliance: Information Technology Equipment

- Operating temperature: 0 °C (EN 60068-2-1:2007, Ae, temperature value in compliance with 6.6 b) to +60 °C (EN 60068-2-2:2007, Be)
- Storage temperature: -40 °C (EN 60068-2-1:2007, Ab) to +85 °C (EN 60068-2-2:2007, Bb)
- Altitude: +3000 m max. (EN 62368-1:2014 + AC:2015)
- Humidity - Condensation: Non-condensing
- Electrical Safety
  - EN 62368-1:2014 + AC:2015
- EMC emission
  - EN 55022
- EMC immunity: EN 55024:2010 + A1:2015 (information technology equipment)
- Flammability (PCBs): UL 94 V-0

Reliability

- MTBF: 383 000 h @ 40°C according to IEC/TR 62380 (RDF2000) (model 02G052A00)

BIOS

- U-Boot Universal Boot Loader

Software Support

- Linux
- For more information on supported operating system versions and drivers see Software.

Germany

MEN Mikro Elektronik GmbH

Neuwieder Straße 1-7
90411 Nuremberg
Phone +49-911-99 33 5-0

sales@men.de
www.men.de

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

USA

MEN Micro Inc.

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

sales@menmicro.com
www.menmicro.com

China

MEN Mikro Elektronik Co., Ltd.

Room 1215, #993 West Nanjing Road
Shanghai 200041
Phone +86-21-5058-0963

sales@men-china.cn
www.men-china.cn

Up-to-date information, documentation and ordering information:
www.men.de/products/g52a/

Contact Information