

# Product Sheet



## EXM32 Family

### Freescale™ i.MX31 CPU Module

EXM32 modules are compact, robust embedded computing modules conforming to the EXM32 standard. The CPU modules contain the rich feature set of a complete embedded computer and connected to carrier boards via high-density elastomeric connectors. Expansion modules can add more I/O functionality being mounted easily on top of the CPU module.

The EXM32 system-on-module (SOM) standard was developed by MSC for use in challenging environments like industrial and automotive computing applications. The rugged modules are offering high computing power and are specified for the industrial temperature range.

#### Features

- Freescale i.MX31 ARM11™ CPU, up to 533 MHz
- Integrated Graphics LCD Controller with drawing accelerator and MPEG encoding hardware, up to 1024 x 768 pixels
- Up to 256MB DDR2 SDRAM
- Up to 64MB NOR Flash
- Up to 4GB NAND Flash
- One 10/100 Base-T Ethernet interface
- Two I<sup>2</sup>C busses up to 400kbit/s
- Memory card interfaces, 1x PCMCIA, 1x SD/MMC Card
- integrated audio interface AC97/I<sup>2</sup>S
- Two USB 2.0, one Host, one OTG
- RTC
- 16 GPIO pins
- WinCE and Linux supported
- Hardware watchdog and reset functions
- 2x UART
- 2x CAN 2.0B
- 8 bit Camera interface
- ID EEPROM
- Improved signal level tolerance (3.3V +/- 10%)

The EXM-IMX31 CPU Module provides high-performance at low power consumption in a wide temperature range.

It incorporates a high performance 533MHz Freescale i.MX31 processor, Flash memory, DDR2 SDRAM and an extensive set of interface controllers. Additionally the module gives access to all CPU features including the processor bus.

For evaluation and design-in of the EXM32 modules, development platforms and starter kits are available.

Product description	Order numbers
Freescale i.MX31, 533MHz, 16MB NOR, 128MB DDR	MSC EXM-IMX31-LITE
Freescale i.MX31, 533MHz, 16MB NOR, 256MB DDR	MSC EXM-IMX31-EVA
Freescale i.MX31, 533MHz, 64MB NOR, 256MB DDR	MSC EXM-IMX31-FULL

## Technical Data – MSC EXM-IMX31

### Core Logic, Memory

**CPU:** CPU Freescale i.MX31, 533MHz, ARM11 Core

**RAM:** up to 256MByte DDR2 SDRAM (soldered)

**Flash:** Up to 64 MB NOR Flash, Up to 4GB NAND Flash

### Drives

**Memory Card:** 1 Port PCMCIA / CF

**Interfaces:** 1 x MMC - / SD - / SDIO – Card

### Standard Interfaces

**Serial:** 2 x UART, (TxD, RxD, RTS & CTS)

**USB:** 2 x USB 2.0, Host & OTG

### Bus Interfaces

**EXM32 Bus:** fully compliant to EXM32 specification; interfaces, GPIO and the CPU bus are available

### Additional Interfaces

**CAN:** 2 x CAN 2.0B (ISO11898, IDB-C)

**Serial I/O:** 2 x I<sup>2</sup>C, up to 400KBit/s, 2 Channel SPI interface, (one channel high speed)

**Camera Interface:** 1 x 8-bit BT.656

### Flat Panel / CRT Interface

**Integrated Graphics:** Graphics Controller, Resolution up to Graphics 1024x768 LCD Interface 18/24-bit hardware drawing acceleration, MPEG Encoder, OpenGL-ES 1.1 supported

### Miscellaneous

**Real Time Clock:** batterie buffered via connector pin

**ID EEPROM:** 2kbit on I<sup>2</sup>C Bus

**GPIO:** 16 lines

### LAN Interface

**Ethernet:** 1 x 10/100Base-T Fast Ethernet with PHY

### Sound Interface

**Audio:** AC97 and I<sup>2</sup>S

### Operating Systems

**Windows® CE:** Starter Kit Image, Bootloader supporting:

- download image into Flash via CompactFlash
- launch downloaded image optional: Windows® CE Board Support Package and Multimedia support available

**Linux:** Board Support Package on request

### Power Supply

**Power:** 3.3V, 750mA active, 0.03W @ sleep, All LVTTTL-Signals 3.3V +/-10% compatible / tolerant

### Environment

**Ambient:** 0°C ... + 70°C @ 533MHz overdrive

**Temperature:** -40°C ... + 85°C @ 400MHz operating, -40°C ... + 125°C storage

**Humidity:** 10 ... 90% (operating)

### Mechanical

**Dimensions:**

Length: 90 mm

Width: 65 mm

Height: max 9.1 mm (including connector)

**Cooling:** no active cooling or heat spreader required

#### Sales Offices Germany

München · Neufahrn · Tel. +49 8165 906 – 100 · e-mail: boards@msc-ge.com · **Technical Support COM:** Tel. +49 8165 906 – 200 · e-mail: support.boards@msc-ge.com; www.msc-ge/support-boards  
Dornach · Tel. +49 89 945532 – 0 · Eching · Tel. +49 8165 9995 – 300 · Berlin · Tel. +49 30 720089 – 0 · Hamburg · Tel. +49 4106 7764 – 0 · Hannover · Tel. +49 511 616847 – 0 ·  
Braunschweig · Tel. +49 5341 2999 – 0 · Düsseldorf · Tel. +49 211 92593 – 0 · Aachen · Tel. +49 2408 709 – 0 · Koblenz · Tel. +49 2630 96239 – 11 · Wiesbaden · Tel. +49 611 97320 – 0 ·  
Frankenthal · Tel. +49 6233 344 – 0 · Stuttgart · Tel. +49 711 78336 – 0 · Freiburg · Tel. +49 761 8819 – 819 · Nürnberg · Tel. +49 911 43970 – 0 · Jena · Tel. +49 3661 6825 – 0 · Stutensee · Tel. +49 7249 910-0

#### Sales Offices Europe

MSC Vertriebs GmbH · Wiener Neudorf · Tel. +43 2236 205066 – 0 · Velden · Tel. +43 4274 23222 – 17 · **MSC Schweiz AG** · Biel/Bienne · Tel. +41 32 366 8565 · Montreux · Tel. +41 21 965 3500 ·  
Rotkreuz · Tel. +41 41 785 8200 · **MSC Iberia S.L.** · Barcelona · Tel. +34 931 505 505 · Madrid · Tel. +34 91 72169 – 51 · **MSC France** · Paris · Tel. +33 1 45128230 · **MSC Italia Srl** · Tel. +39 039 63089-1 ·  
MSC Nederland BV · Tel. +31 78 6920 – 150 · **MSC Belgium Office** · Tel. +32 2 452 6451 · **MSC (UK) LTD.** · Brighton · Tel. +44 1273 622446 · **Chertsey** · Tel. +44 1932 796335 ·  
MSC (Scotland) LTD · Tel. +44 1506 460555 · **MSC Representative (DK) Emcomp Nordic Area** · Tel. +45 49193854 · **MSC-Vertriebs-CZ s.r.o.** · Blansko · Tel. +420 516 411494 – 15 ·  
Prague · Tel. +420 296 580260 · **MSC-Vertriebs-SK s.r.o.** · Zilina · Tel. +421 41 5001243 · **MSC Budapest Kft.** · Tel. +36 1250 90 – 40 · **MSC Polska Sp. z o.o.** · Tel. +48 323 3054 – 50 ·  
MSC-Mibatron s.r.l. · Bucharest · Tel. +40 31 1023466 · Tel. +40 21 2302530 · **MSC Vertriebs GmbH** · Istanbul · Tel. +90 216 411 2333

#### Head Office Stutensee

MSC Vertriebs GmbH · Industriestraße 16 · 76297 Stutensee · Tel. +49 7249 910 – 0 · Fax +49 7249 7993 0 · Stutensee@msc-ge.com



MICROCOMPUTERS  
SYSTEMS  
COMPONENTS  
VERTRIEBS GMBH

[www.msc-ge.com/boards](http://www.msc-ge.com/boards)

© MSC. All rights reserved. Although great care has been taken in preparing this printed matter, MSC can not be held responsible for any errors or omissions. All information in here is subject to change without notice. All hardware and software names used are trade names and/or trademarks of the respective manufacturer.