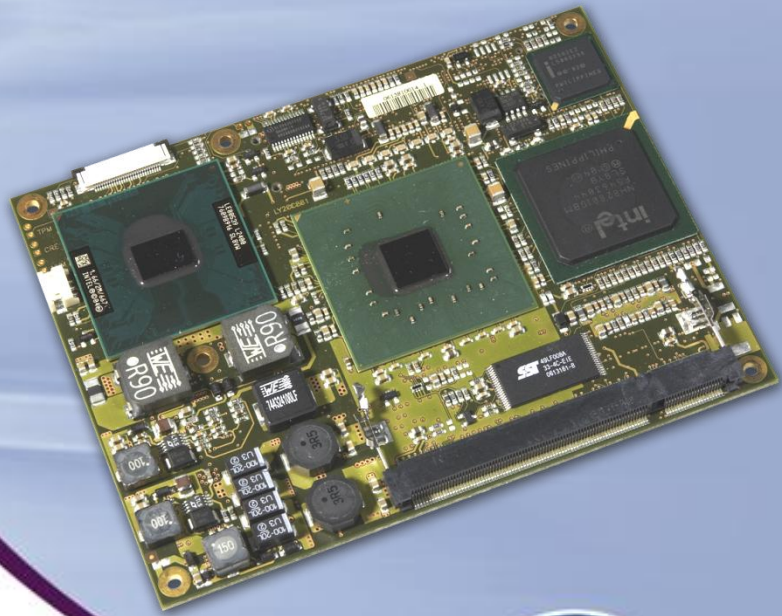


# Product Sheet



## COM Express™ Family

### Intel® Core™ Duo Basic

**COM Express™**, an open specification of the PICMG (PCI Industrial Computer Manufacturer Group), is a module concept to bring PCI Express and other latest technologies like SATA, USB 2.0 and LVDS on a COM (Computer On Module).

COM Express is plugged onto an application-specific base board similar to the ETX concept, but offers more options and a growth path to future CPU technologies. Utilizing different sizes, COM Express can be used for highly embedded solutions up to high performance platforms.

The design of the **MSC CXB-CD945** module is based on Intel's dual core CPU technology enabling you to boost your embedded application to highest performance levels.

Different Core Duo and Core 2 Duo processors are supported by this design and future low power single core models will also become available.

Besides an extensive set of interfaces and features, the **MSC CXB-CD945** offers hardware and BIOS based security compliant to the requirements of TCG (Trusted Computing Group).

For evaluation and design-in of COM Express™ modules MSC provides evaluation baseboards. These motherboards provide the interface infrastructure for COM Express™ modules and offer PC type connectors for external access.

Special starter kits for Linux are available upon request.

## Features

- Intel® Celeron M 423 (1,06GHz), Intel® Celeron M 440 (1.86GHz), Intel® Core™ Duo L2400 (1.66GHz), L7400 (1.5GHz), Intel® Core™ 2 Duo U2500 (1,20 GHz)
- Mobile Intel® 945GM Chipset with integrated Intel® Graphics Media Accelerator 950
- PCI Express™ x16 (PEG) Support
- Up to 2GB DDR2 SDRAM
- Two SATA-300 mass storage Interfaces
- 10/100/1000 Base-TX Ethernet interface
- LVDS interface (18 / 24 / 36 / 48 Bit)
- Resolution up to 2.048 x 1.536
- CRT interface up to 2.048 x 1.536
- Dual Independent Display supported
- Four PCI Express™ x1 lanes
- Eight USB 2.0 interfaces
- AC'97 or HD audio interface
- Infineon TPM 1.2
- Phoenix TrustedCore BIOS
- System monitoring, watchdog
- ACPI power management including Suspend-to-RAM support
- Fully COM Express™ Type 2 compliant
- Windows XP (embedded) and Linux supported

Product description (more options upon request)	Order No.
MSC CXB-CD945-L2400-162000, Intel® Core™ Duo L2400, 10/100/1000Base-TX, TPM 1.2	32230
MSC CXB-CD945-L7400-164000, Intel® Core™ 2Duo L7400, 10/100/1000Base-TX, TPM 1.2	32237
MSC CXB-CD945-U2500-262000, Intel® Core™ Duo U2500, 10/100/1000Base-TX, TPM 1.2	32238

## Technical Data – MSC CXB-CD945

### Core Logic, Memory

**COM Express:** Intel® Celeron M 423 (1,06GHz), Intel® Celeron M 440 (1.86 GHz), Intel® Core™ Duo L2400 (1.66 GHz) or Intel® Core™ 2 Duo L7400 (1.5 GHz), Intel® Core™ Duo U2500 (1.2 GHz)

**Chipset:** Intel® 82945GM(E), ICH7-M

**Memory:** 200-pin SO-DIMM socket for up to 1GB PC4200 DDR2 SDRAM

### Drives

**SATA:** 2 x SATA-2 channels (up to 300MB/s)

**EIDE:** 1 x Enhanced IDE port (ATA/UDMA100)

### Standard Interfaces

**USB:** 8 x USB 2.0

### Bus Interfaces

**COM Express™ Interface:** Type 2 interface, fully compliant

**PCI Express™ Interface:s:** Four channels PCI Express x1, one channel used for Gbit Ethernet , one PCI Express Graphic (PEG) x 16

**PCI Bus:** 32 Bit, 33MHz standard interface (PCI 2.3)

**LPC:** Low Pin Count bus for heritage interfaces

### Flat Panel/ CRT Interface

**Graphics Controller:** Intel® Graphics Media Accelerator 950 (integrated in Intel® 945GM/E chipset)

**Video Memory:** UMA, up to 224 MB

**LCD Interface:** LVDS 24/48 Bit, dual channel, Resolution up to 1600 x 1200

**CRT Interface:** Resolution up to 2048 x 1536

### Miscellaneous

**Watchdog Timer:** Initiates system reset (programmable, 1s ... 255h)

**Fan Supply:** 3-pin header (5V)

**Battery:** External

**System Monitoring:** Voltage, Temperature, Fan

### LAN Interface

**Ethernet:** 10/100/1000Base-TX (Intel® 82573E)

### Sound Interface

**Audio:** AC'97 2.3 Audio Interface or HD Audio Interface (recommended)

### Security Device

Infineon Trusted Platform Module 1.2 SLB 9635

### Bios

Phoenix TrustedCore

**Boot Options:** Quick Boot, MultiBoot XP (FD, HD, CD, LAN, USB), Boot without keyboard, LAN Boot via PXE (RPL optional), Wake on LAN (WOL) supported

**Security:** Phoenix StrongROM technology, TPM 1.2 support, Pre-Boot-Authentication, Phoenix SecureFlash for safe BIOS updates

**Power Management:** ACPI (S3, S4, S5 supported), Enhanced Intel SpeedStep® technology supported, Active/passive cooling with CPU fan control

**USB:** USB legacy support (Keyboard, Mouse, Hub)

**Video:** VGA BIOS with flat panel extensions (EPI)

**Setup:** CMOS configuration backup in EEPROM

**HW Programming I/F:** UspEpc (Universal board support package for embedded PCs)

### Power Supply

**Power:** Power +12V +/-10%, 5V Stby optional

**Power Consumption:** 9W typ. (423, 1,06GHz), 27W typ. (440, 1.86GHz), 20W typ. (L2400, 1.66GHz), 25W typ. (L7400, 1,5 GHz), 10W typ. (U2500, 1,2GHz),

### Environment

**Ambient:** 0 ... 60 C (operating)

**Temperature:** -25 ... 85 C (storage)

**Humidity:** 5 ... 95% (operating, non-condensing), 5 ... 95% (storage, non-condensing)

### Mechanical

**Dimensions:** 125mm x 95mm x13mm

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