

DIMMBoard DX86

Factsheet

- Extremely compact embedded CPU module in credit card dimensions
- Perfectly suited as central computing unit due to cost optimized design without graphics controller
- Low power dissipation of ca.3-4 Watt (@600 MHz)
- 0-60°C operating Temperature
- Extended Temperature without cooling solution -40-+70°C
- Conformal Coating possible
- Passive cooling meeting the requirements for fanless design (@ 600 MHz)
- Full PC functionality with classical features like ISA , LPT or optional IDE
- Long term availability of >5 years

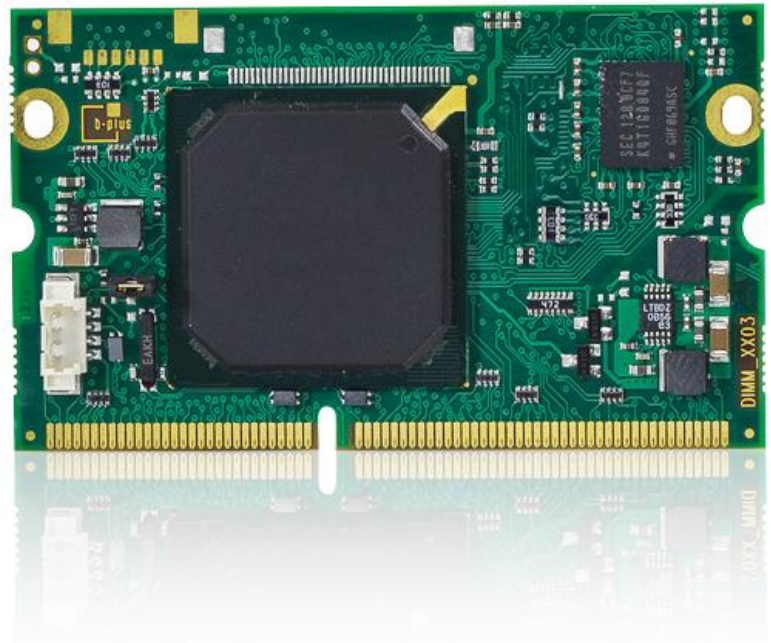


Illustration 1: DIMMBoard DX86

COM Solution based on Vortex86DX - SoC

DIMMBoard DX86 is nearly compliant to the DIMM-PC® module specification in fit & functions. The core unit is a 27x27mm sized Vortex86DX SoC by DMP (581-Pin Ball BGA Package). The CPU features a Floating Point Unit(FPU), is x86 compliant and supports clock rates up to 1.0 GHz. Clocked at 600 MHz a fully passive cooled operation is possible resulting in minimal spatial dimensions. Due to the extremely low power consumption it's the ideal solution for mobile embedded devices. A nearly unlimited portfolio of peripheral interfaces and functions allows various application scenarios. Drivers and software support for current embedded operating systems are available, e.g. DOS, WinCE, WinXP embedded and Linux, that makes a migration of existing software from another x86 architecture easier. The modular concept as a plug-in module enables scaling of performance classes. Due to the featuring of the onboard FLASH drive as a Micro-SD-Card Slot the size of the mass storage can be scaled from 1 GB up to 16 GB. Additionally USB and optional IDE are realized with 2 feature connectors directly on the board.

Software Support

According to the SoC manufacturer drivers are available for common OS such as DOS, WindowsXP Embedded, Windows CE, Linux and QNX. For these OS demo images including startup guides are available - In this case these are images for Windows CE6 or Linux for Debian kernel version 2.6.27.9 and X-Linux kernel (Manufacturer DMP) – Special customized drivers – especially for Windows CE - can be provided by b-plus.

Technical Information

Processor

- DMP Vortex86DX 32-Bit x86 SoC

SDRAM

- 256 / 512 MByte DDRII on board @ 300MHz

Cache

- 16 KB I/D L1 Cache, 256 KB L2 Cache

Micro SD Socket

- On board Bootdevice

GPIOs

- 2x TTL

LPT Interface

- Revision 1.0 compliant (DMA, Serial IRQ Support)

ISA Bus Interface

- ISA 16-bit bus @ 8,33MHz / 5V tolerant

Serielle Schnittstellen

- 2x TTL (16C550 kompatibel) – 2x Full featured

USB

- 4x USB 1.1/2.0 Host (OHCI / EHCI 1.0)

Ethernet

- 1x Fast Ethernet IEEE 802.3u 100 Base-T (R6040)

Dimensions

- 68 x 40 x 8 mm

Power dissipation

- typ. 3 - 4 W @ 5V / 600 MHz

Operating temperature

- 0-60°C
- -40-70°C (without cooling)

Feature Connectors

Harddisk (PATA) – 40 Pin

- 1x EIDE Channel (PIO)

USB – 4 Pin

Technical Details

Through the first serial Interface (COM1) it is possible to send the command shell messages of the system start operation (Unlockable via software). The 16C550 compliant UARTs are equipped with 16 byte FIFO and support baud rates from 50 to 460,8 kBaud. The USB host controller supports the operating modes LS (Lowspeed / USB 1.1 / 1,5MHz), FS (Fullspeed / USB1.1 / 12 MHz / 64 Byte FIFO) and HS (Highspeed / USB2.0 / 480 MHz / 1kByte FIFO). Further integrated peripheral elements are a watchdog, adjustable from 30,5 µsec up to 512 sec, 2 hardware timers (8254), an integrated RTC (Real Time Clock), as well as a standard speaker output. The SoC implements both, MAC controller and the physical controller (PHY) of the Ethernet interface, thus externally only the transformer and jack have to be activated. Up to 600 MHz you can run the CPU without heatsink (purely passive). The processor features a configurable AMI BIOS (Core 8) in a 2MB internal flash.

In offline operation BIOS settings can be modified, logos can be adopted and the Video BIOS can be substituted. This BIOS supports numerous boot options like system boot via USB (Floppy, CDROM) IDE or SD (SDHC) as well as via Ethernet. Contact us if you need information about the DDR SODIMM 144 socket.

Ordering Information

Name	Partno.	Description
DIMMBoard DX86	B13500-DIM-001-0001	600 MHz, 256 MByte SDRAM
DIMMBoard DX86 EXT	B13500-DIM-001-0002	600 MHz, 256 MByte SDRAM, -40°C - +85°C, µSD
DIMMBoard DX86 IDE	B13500-DIM-001-0003	600 MHz, 256 MByte SDRAM, DIE
DIMMBoard DX86 EXT IDE	B13500-DIM-001-0004	600 MHz, 256 MByte SDRAM, -40°C - +85°C, DIE
DIMM-Carrier	B13700-DIM-001-0001	Baseboard for Evaluation of DIMMBoard DX86