

# CM1-86DX2

## Extreme Rugged™ PC/104 Single Board Computer with Vortex86DX2 System-on-Chip



### Features

- Ultra low power, DM&P Vortex86DX2 SoC
- Full ISA bus support
- 512MB/1GB onboard DDR2 memory
- 2x Ethernet ports
- 8x GPIO
- VGA and 18/24-bit single channel LVDS
- HD Audio for CM1-86DX2-1G version
- PCI Express Mini Card and optional microSD slot
- Extreme Rugged™ operating temperature: -40°C to +85°C
- Supports Smart Embedded Management Agent (SEMA) functions

### Specifications

#### Core System

CPU	Vortex86DX2 SoC, 800/1000 MHz
Memory	Standard: 512MB DDR2 soldered on board Optional: 1GB DDR2 soldered on board
BIOS	AMI BIOS, integrated in SoC
SEMA	Yes
Hardware Monitor	2x LAN, watchdog
Watchdog Timer	Yes, 3 different
Expansion Busses	PC/104 (ISA) PCI Express Mini Card slot

#### Video

VGA Interface	Yes
LVDS Interface	18/24-bit single channel

#### Audio (option)

HD Audio	ALC886
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#### Ethernet

Standard	1x integrated PHY (10/100 Mbit)
Optional	1x integrated PHY (10/100 Mbit) 1x Intel® i210IT (10/100/1000 Mbit)

#### I/O Interfaces

USB	3x USB 2.0
SATA	1x SATA 1, 5 Gb/s or 1x mSATA
MicroSD	1x standard slot for micro SD and micro SDHC, UDMA-2 mode
Serial	Standard: 2x RS-232/485 Optional: 4x RS-232/485
PS2	Keyboard and mouse
LPT	Yes
GPIO	Standard: 8x Alternative configuration(s): - TTL level COM
A/D	8x Input

#### Power

Input Power	ATX = 5V±5% / 5Vsb ±5% or AT = 5V±5%
Power Consumption	Approx. ~ 6 to 7 W
Power States	No ACPI

#### Mechanical and Environmental

Form Factor	PC/104 Specification 2.6
Dimensions	96 mm x 90 mm (3.775" x 3.550")
Operating Temperature	Standard: 0°C to +60°C Industrial: -20°C to +70°C Extreme Rugged™: -40°C to +85°C
Storage Temperature	-55°C to +85°C
Cooling	Passive
Humidity	10% to 90% (non-condensing)
Shock	Non-operating: 50G peak-to-peak, 11ms duration, MIL-STD-202G Method 213B
Vibration	Operating: 11.95 Grms, 50-2000 Hz, each axis, MIL-STD-202G Method 214A

#### Operating Systems

Standard Support	Windows XP, Windows XPe, Linux
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### Ordering Information

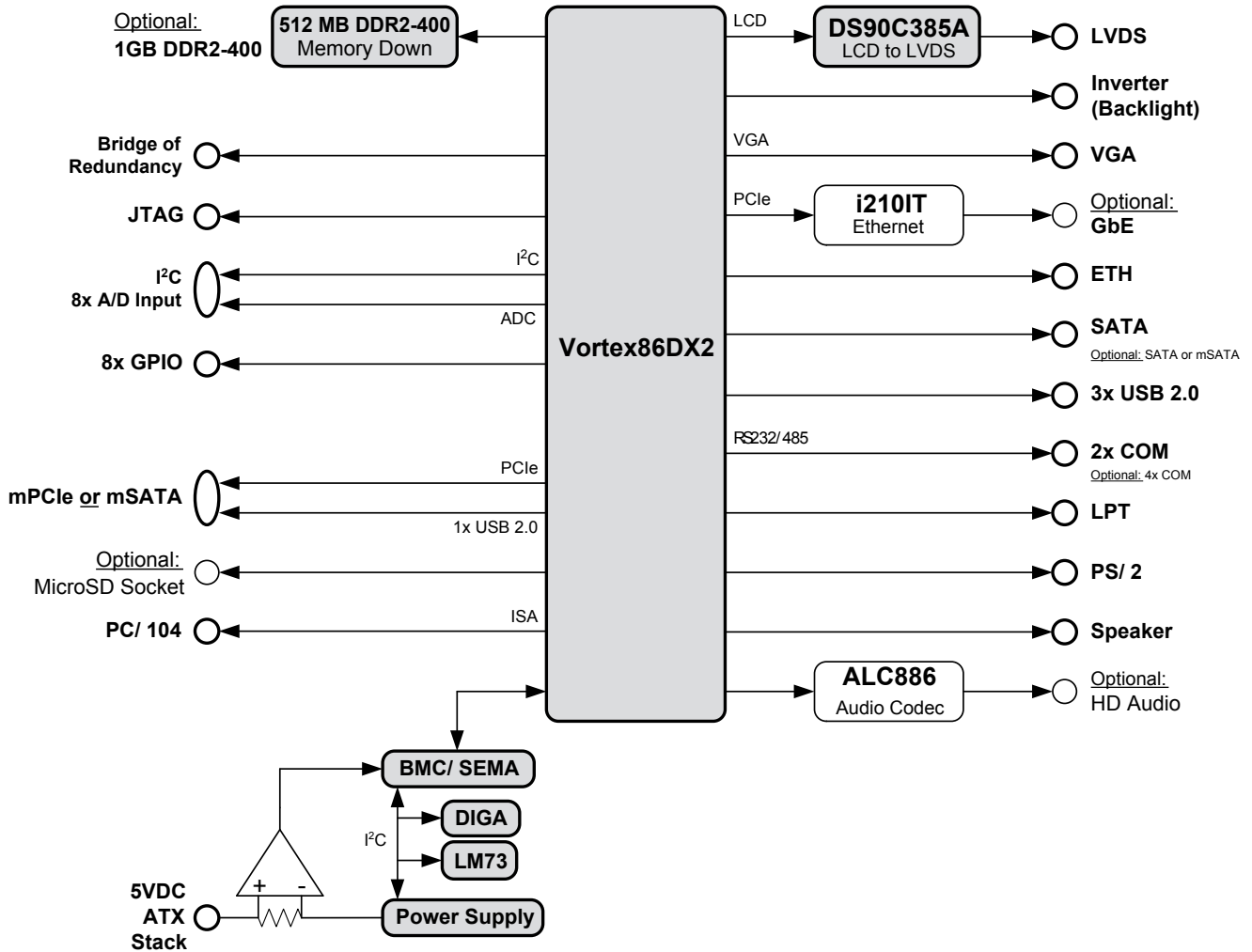
#### Modules

Model Number	Description/Configuration
702-0018-10	PC/104, CM1-86DX2, Vortex 86DX2, 1.0 GHz, 1GB DRR2 onboard, incl. heatsink, Standard operating temperature 0°C to +60°C
702-0020-10	PC/104, CM1-86DX2, Vortex 86DX2, 1.0 GHz, 512MB DRR2 onboard, incl. heatsink, Standard operating temperature 0°C to +60°C
802-0018-10	PC/104, CM1-86DX2, Vortex 86DX2, 1.0 GHz, 1GB DRR2 onboard, incl. heatsink, Industrial operating temperature -20°C to +70°C
802-0020-10	PC/104, CM1-86DX2, Vortex 86DX2, 1.0 GHz, 512MB DRR2 onboard, incl. heatsink, Industrial operating temperature -20°C to +70°C
902-0018-10	PC/104, CM1-86DX2, Vortex 86DX2, 800 MHz, 1GB DRR2 onboard, incl. heatsink, Extreme rugged operating temperature -40°C to +85°C
902-0020-10	PC/104, CM1-86DX2, Vortex 86DX2, 800 MHz, 512MB DRR2 onboard, incl. heatsink, Extreme rugged operating temperature -40°C to +85°C

#### Accessories

Model Number	Description/Configuration
763-0024-10	Cable set, CM1-86DX2

# Functional Diagram



## CM1-86DX2 Standard Variants

Product Name	CM1-86DX2-512	CM1-86DX2-1G
Form Factor	PC/104	PC/104
P/N	702-0020-10 802-0020-10 902-0020-10	702-0018-10 802-0018-10 902-0018-10
CPU / SoC	Vortex 86DX2	Vortex 86DX2
CPU / SoC Speed	1.0 GHz (@ ext. temp. max. 800 MHz)	1.0 GHz (@ ext. temp. max. 800 MHz)
Overall TDP	~ 6-6.5W	~ 7W
Supply Voltage [5 VDC / ATX / Stack]	Yes / Yes / Yes	Yes / Yes / Yes
Soldered DDR2 RAM	512MB	1GB
Bridge of Redundancy	Yes	Yes
ISA Bus (PC/104)	Yes	Yes
JTAG	Yes	Yes
I2C	Yes	Yes
PS/2	Yes	Yes

Product Name	CM1-86DX2-512	CM1-86DX2-1G
Speaker	Yes	Yes
HD Audio (option)	No	Yes
VGA	Yes	Yes
LVDS	Yes	Yes
microSD socket (option)	No	Yes
SATA (1.5 Gbit/s)	1	1
mSATA (lose 1x SATA port AND mPCIe)	1	1
miniPCIe (lose mSATA)	1	1
10/100 Mbit ETH	1	1
GbE Ports (optional)	0	1
USB 2.0	3	3
COM Ports	2	4
LPT	1	1
GPIO	8	8
A/D Input(s)	8	8

Note: All specifications are subject to change without further notice.