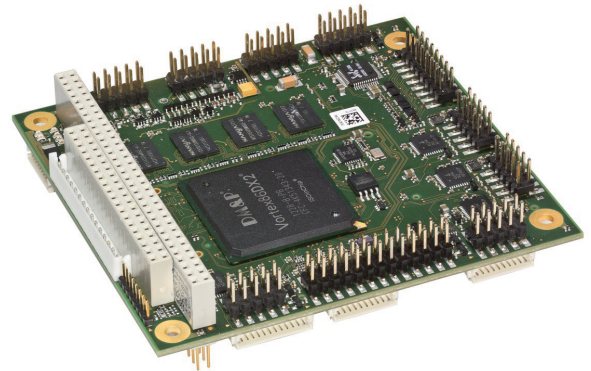


# CM1-86DX2

## 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

##### Cache

512 kB to 2 MB L2 cache

##### 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

#### • 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

##### Standard Input

ATX = 5V±5% / 5Vsb ±5% or AT = 5V±5%

##### Power States

No ACPI

##### Power Consumption

Approx. ~ 6 to 7 W

- **Mechanical and Environmental**

**Form Factor**

PC/104 Specification 2.6

**Dimension**

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

**Humidity**

10% to 90% (non-condensing)

**Shock and Vibration**

Non-operating: 50G peak-to-peak, 11ms duration, MIL-STD-202G Method 213B

Operating: 11.95 Grms, 50-2000 Hz, each axis, MIL-STD-202G Method 214A

**Storage Temperature**

-55°C to +85°C

**Cooling**

Passive

- **Operation System**

**Standard Support**

Windows XP, Windows XPe, Linux

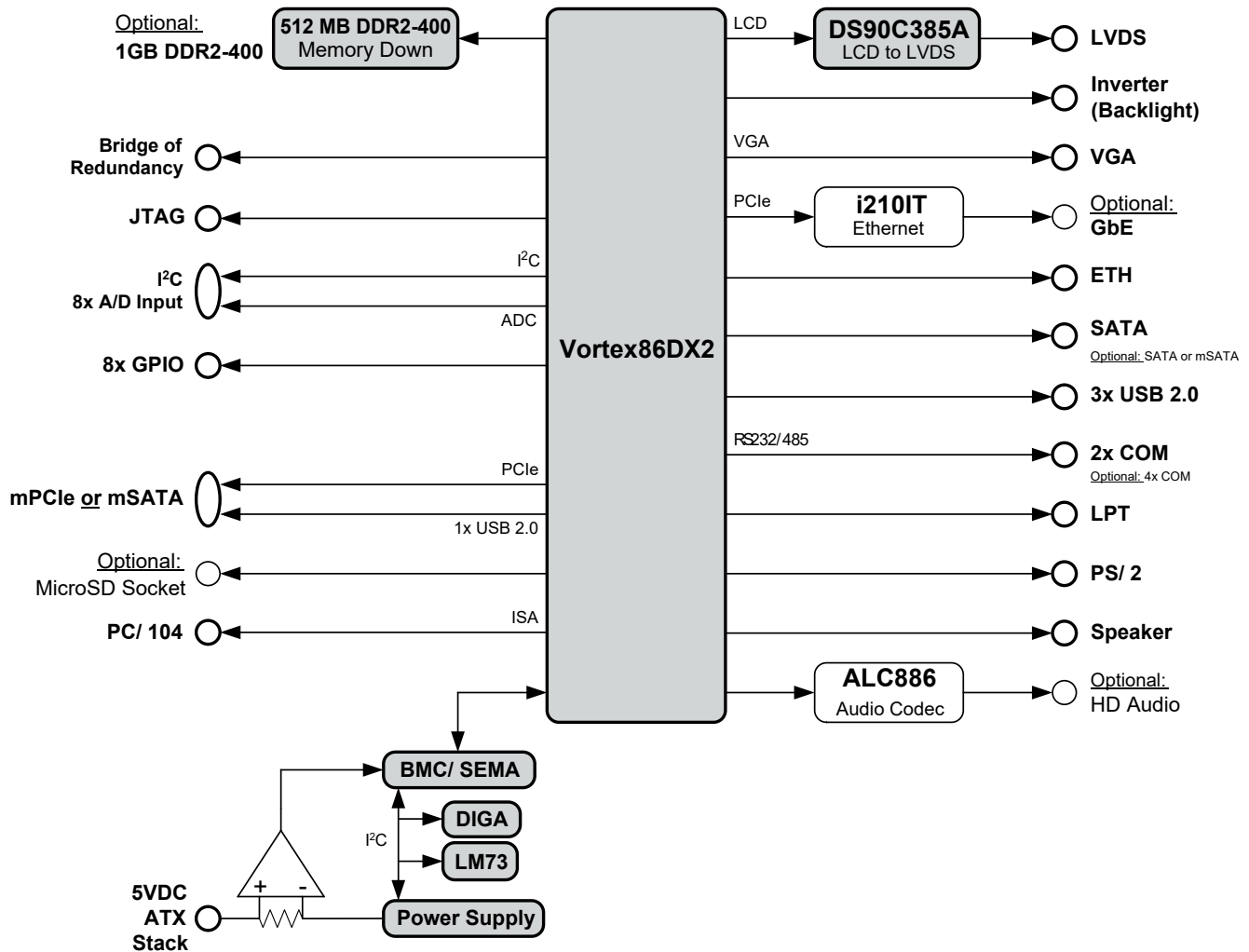
- **Intelligent Middleware**



**SEMA®**

Local management, control of embedded computer systems Extended EAPI for monitoring, controlling and analytics applications Multiple OS support and across platforms (x86, ARM)

# 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
I <sup>2</sup> C	Yes	Yes
PS/2	Yes	Yes

Product Name	CM1-86DX2-512	CM1-86DX2-1G
Speaker	Yes	Yes
HD Audio	No	Yes
VGA	Yes	Yes
LVDS	Yes	Yes
microSD socket	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	0	1
USB 2.0	3	3
COM Ports	2	4
LPT	1	1
GPIO	8	8
A/D Input(s)	8	8

## Ordering Information

- **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
- **763-0024-10**  
Cable set, CM1-86DX2

\*other configurations by request