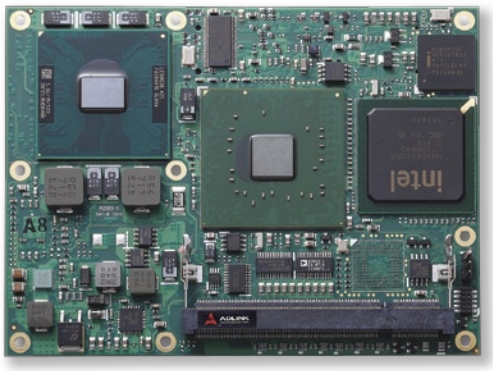
Express-NR

COM Express® Module with Intel® Core™2 Duo Processor and 945GME / ICH7-M Chipset



Features

- Intel® Core™2 Duo processor (up to 2.1 GHz)
- Intel® 945GME / ICH7-M chipset
- Dual SODIMM for up to 4 GB DDR2 at 667 MHz
- One PCIe® x16, five PCIe® x1 (or one x4)
- Single/dual 18/24-bit LVDS, TV-out
- SATA, PATA, Gigabit LAN, USB 2.0

Specifications

Core System

CPU	**Merom Core socket type**
	Intel® Core™2 Duo T7400, 2.16GHz with 4MB L2 cache, 34 W
	Intel® Celeron® M 530, 1.73GHz with 1MB L2 cache, 27 W
	Merom Core BGA type
	Intel® Core™2 Duo L7400, 1.5 GHz with 4MB L2 cache, 17 W
	Intel® Core™2 Duo U7500, 1.06 GHz with 2MB L2 cache, 10 W
	Yonah Core socket type
	Intel® Core™ Duo T2500, 2.0 GHz with 2MB L2 cache, 31 W
	Intel® Celeron® M 440, 1.86 GHz with 1MB L2 cache, 27 W
	Yonah Core BGA type
	Intel® Core™ Duo L2400, 1.66GHz with 2MB L2 cache, 15 W
	Intel® Core™ Duo U2500, 1.2 GHz with 2MB L2 cache, 9 W
	Intel® Celeron® M 423, 1.06GHz with 1MB L2 cache, 5.5 W
Memory	Dual SODIMM sockets supporting dual channel memory, up to 4 GB of non-ECC, 533/667 MHz DDR2
Chipset	Intel® 945GME Express Graphics Memory Controller Hub
	Intel® I/O Controller Hub 7 Mobile (ICH7-M DH)
BIOS	AMIBIOS®8 with CMOS backup in 8 Mbit SPI flash
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	Programmable timer ranges to generate RESET
Expansion Busses	6 PCI Express x1 (0 – 4 free, 5 occupied by GbE LAN), optional configurable as x4
	Graphics PCI Express x16, or SDVO digital video bus
	32-bit PCI 2.3 at 33MHz, supporting 6 bus masters
	LPC, SMBus, I²C

Video

Chipset	945GME GMCH integrated graphics supports dual independent displays
VGA Interface	Analog VGA support up to 2048 x1536 resolution
LVDS Interface	Single / Dual channel 18/24-bit
TV-out	NTSC/PAL up to 1024x768 resolution, HDTV 480p/720p/1080i/1080p modes supported (without Macrovision)

Audio

Chipset	Integrated on Intel® ICH7-M DH
Audio Codec	HDA (Azalia) or AC'97 codec on carrier

LAN

Chipset	PCIe type Intel® 82573L
Interface	10/100/1000 Mbps

Multi I/O

Chipset	Intel® ICH7-M
IDE (PATA)	Single channel IDE with UDMA 100 support
SATA	Three SATA 1.5 Gb/s ports
USB	Up to eight USB 2.0 ports

Super I/O

Connected to LPC bus on carrier if needed

TPM

Chipset	Infineon SLB9635TT1.2 (optional)
Type	TPM 1.2

Power Specifications

Input Power	AT mode (12 V) and ATX mode (12 V and 5 Vsb)
Power States	Supports S0, S1, S3, S4, S5
Power Consumption	16 W typical (with Core™2 Duo U7500 and 1 GB memory)

Mechanical and Environmental

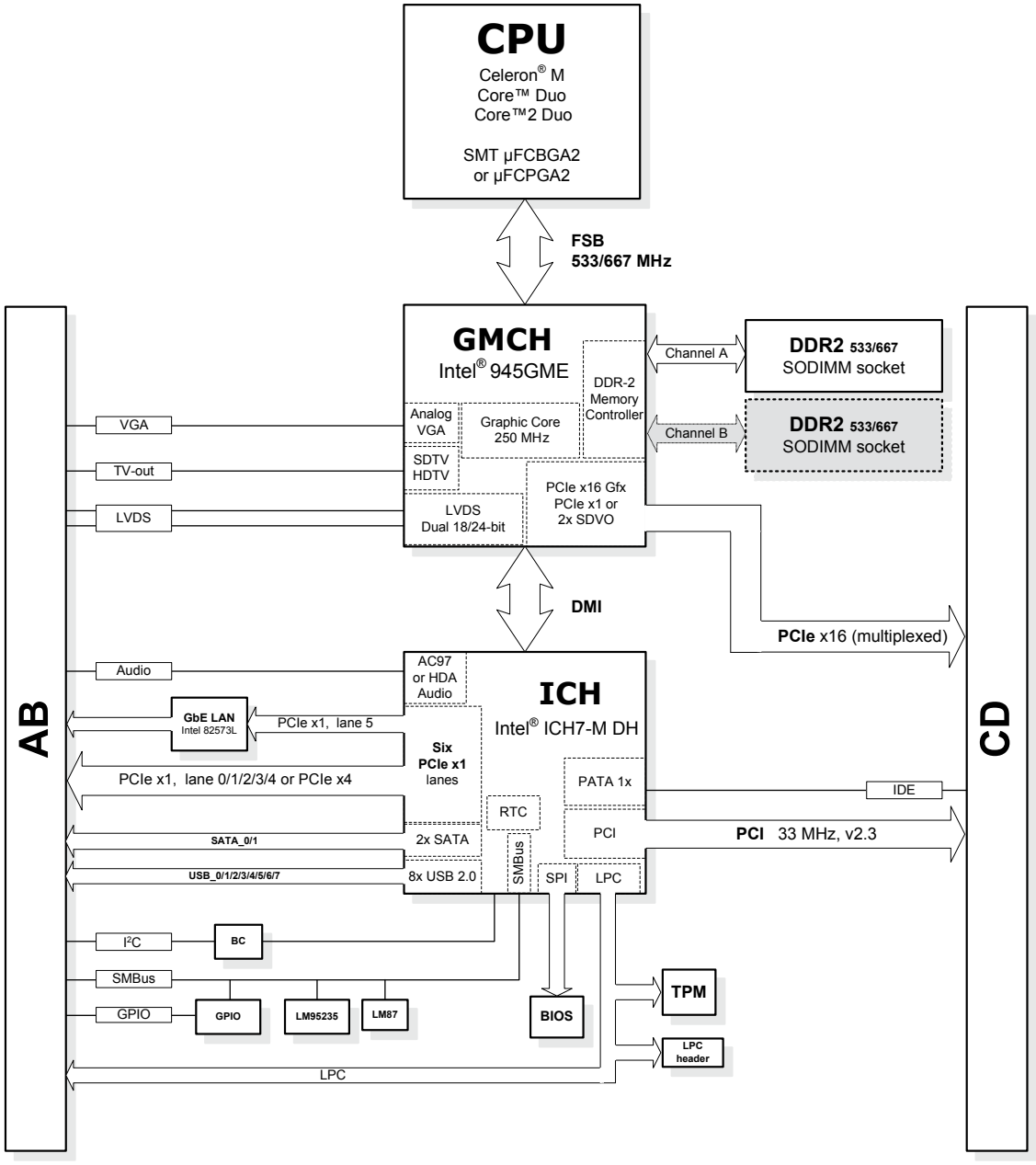
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Humidity	Up to 90% at 60°C
Shock	15G peak-to-peak, 11ms duration, non-operation
Vibration	Non-operating: 1.88 Grms, 5-500 Hz, each axis
	Operating: 0.5 Grms, 5-500 Hz, each axis
Form Factor	COM Express® Type 2, Basic form factor, 95 mm x 125 mm
Certifications	CE, FCC

Operating Systems

Standard Support	Windows® XP 32/64-bit
	Windows® Vista 32/64-bit
	Windows® Server 2003
	Linux® 2.6.x
Extended Support	Embedded XP BSP
	WinCE BSP
	Linux® 2.6.x BSP
	AIDI Library for Win32, WinCE and Linux®

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Functional Diagram



Ordering Information

Modules

Model Number	Description/Configuration
Express-NR-S	COM Express® Module with socket for Celeron® M / Core™ Duo / Core™2 Duo processor (for Intel® Core™2 Duo T7400 processor at 2.16 GHz or Intel® Celeron® M 440 processor at 1.86 GHz)
Express-NR-L7400	COM Express® Module with LV Intel® Core™2 Duo L7400 processor at 1.5 GHz
Express-NR-L2400	COM Express® Module with LV Intel® Core™ Duo L2400 processor at 1.66 GHz
Express-NR-U7500	COM Express® Module with ULV Intel® Core™2 Duo U7500 processor at 1.06 GHz
Express-NR-423	COM Express® Module with ULV Intel® Celeron® M 423 processor at 1.06 GHz

Accessories

Model Number	Description/Configuration
Heat Spreaders	
HTS-NR-B	Heatspreader for Express-NR (BGA CPU) with threaded standoffs
Passive Heatsinks	
THS-NR-B	Low Profile Heatsink for Express-NR (BGA CPU) with threaded standoffs
THSH-NR-B	High Heatsink for Express-NR (BGA CPU) with threaded standoffs
Heatsink with Active Cooling	
THSF-NR-S	High Performance Heatsink with Fan for Express-NR (socket CPU) with threaded standoffs

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