



COM Express

From Parallel to Serial

COM Express™ modules are highly integrated off-the-shelf building blocks based on a PCI Express® bus architecture that plug into custom made, application-specific carrier boards. COM Express™ modules measure just 95 mm x 125 mm and include most generic functions such as video, audio, Ethernet, storage interfaces, and USB ports that are needed for most applications. A custom designed carrier board complements the COM Express™ core module with additional functionality required for a specific application.

COM Express™ is a result of the convergence of the latest technology standards based on serial differential signalling such as PCI Express® USB 2.0, Serial ATA, LVDS, and Serial DVO implemented on an extremely compact Computer-on-Module. Moving from parallel busses such as PCI™ and IDE to serial busses such as PCI Express® is a change the scale of which has not been seen since PCI™ replaced ISA.

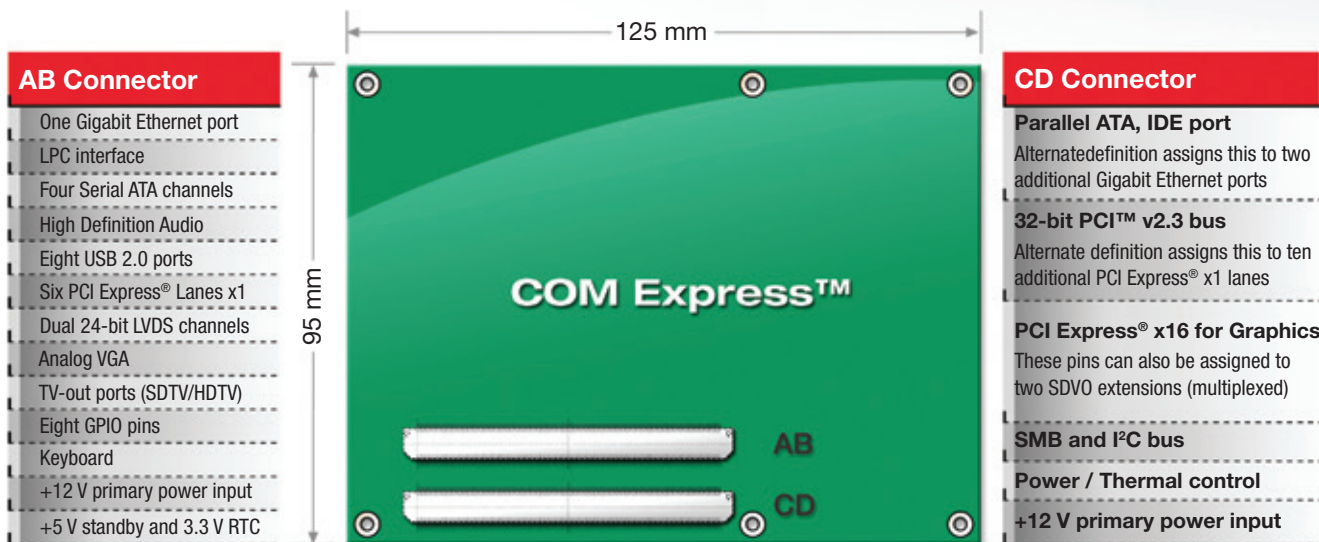
PCI Express® as a Central Bus

At the core of the COM Express™ module lies the PCI Express® bus. PCI Express® is a two-way serial connection that carries data in packets along two pairs of point-to-point data lanes. It can be used as a peripheral device interconnect, a chip-to-chip interconnect, and a bridge to other interconnects such as IEEE 1394b, USB 2.0, SATA, and Gigabit Ethernet.

PCI Express® constitutes the most significant PC bus architecture change in over a decade, delivering a huge increase in I/O bandwidth while maintaining software compatibility with the existing PCI™ infrastructure.

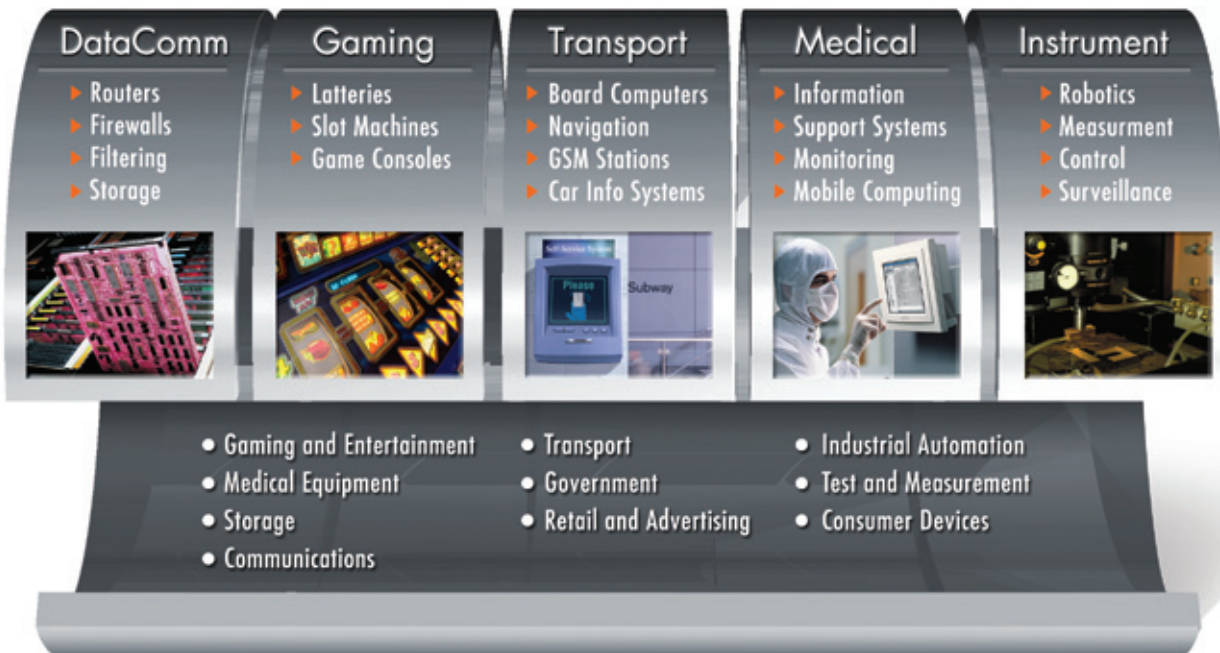
Legacy Support

In an effort to protect existing investments, the initial COM Express™ standard will maintain support for 32-bit PCI™, ISA through LPC and PATA IDE. At a later stage the COM Express™ formfactor will abandon both PCI™ and IDE legacy signals to make room for two additional Gigabit Ethernet ports and 10 additional PCI Express® lanes.



Above connector assignments comply with
PICMG® COM.0 COM Express™ Module,
Basic Formfactor

COM Applications



Embedded from A to Z

The Economics of Modularity

Reusability is key to protection of your investment. Computer-On - Module offer it all, from reusable design, scalability and fast time to the market to a lower total cost of ownership.

Green because we care

We provide lead-free designs not only to satisfy future regulatory standards but also to reflect our real concern about the environment - an environment that has to be shared by all of us. Proof of ADLINK's commitment is with ISO-140001 certification. ISO-14001, the international environmental management standard is a voluntary initiative aimed at improving company environmental performance.

Expertise for Carrier Board Design Support

With product divisions that are front runners in fields such as : Data Acquisition, Test and Measurement, AdvancedTCA, CompactPCI and Video Surveillance, ADLINK can offer you a broad portfolio of technical knowledge to assist you in your application specific carrier board projects.

Firmware Support (BIOS)

Adding active components to the carrier boards usually requires a BIOS modification. We offer a whole team of BIOS engineers who can extend and tune the firmware on our boards to let them behave exactly the way you want. We use the AMIBIOS8® on most of our newer boards. AMIBIOS8® provides us with excellent embedded functions such as : custom logo, OEM CMOS defaults, flat panel control, serial port console redirection, CMOS backup and trusted core support.

Drivers and BSP

All modules come standard with BSP's for Windows CE, Windows XP Embedded, Linux, and VxWorks. Support for additional components on your application specific carrier board under the above operating systems can be developed on request.



Longevity is Designed in

ADLINK's COM modules represent an optimized Total Cost of Ownership. They have longevity designed in by only using components from the embedded roadmaps of strategic suppliers that are backed by value-added technical services such as life cycle management, revision control and end-of-life (EOL) support.

Manufacturing and Quality

ADLINK has its own SMT production line that supports the production of leadfree products. ADLINK has been ISO-9001 certified since May 1999. ADLINK also adheres to 6 Sigma, a set of statistics and methods for improving everything a company does, from designing, manufacturing to service. By applying the rigorous practices of 6 Sigma, we've been approved by industry-leading partners, and achieved breakthroughs in quality performance to deliver better services to our customers.

Selection Guide

COM Express™



Basic (125 x 95 mm)

NEW



NEW



NEW



	Express-CB	Express-MV	Express-MG
CPU Type	Intel® Core™ i7/i5 (Arrandale) up 2.4 GHz with 4 MB L2 cache	Intel® Core™2 Duo (Penryn) up 2.26 GHz with 6 MB L2 cache	Intel® Core™2 Duo (Penryn) up 2.53 GHz with 6 MB L2 cache
CPU Package	µFC-BGA only	µFC-BGA only	µFC-BGA only
CPU Speeds / Numbers	Celeron® M TBD Core™ i7 (Arrandale) i7-620E/M, 620LE, 620UE, i5-520E/M	Celeron® M 722, 723 Core™2 Duo (Penryn) SP9300, SL9400, SL9380, SU9300	Celeron® M 575, T3100 (dual core) Core™2 Duo (Penryn) T9400, P8400
FSB Speed	-	1066/800	1066/800
Main Chipset	Intel® PCH QM57	Intel® GS45 with ICH9M (SFF)	Intel® GM45 with ICH9M
System Memory	8 GB (max), dual channel	8 GB (max), dual channel	8 GB (max), dual channel
Memory Type	Dual channel DDR3	Dual channel DDR3	Dual channel DDR3
Soldered Memory	-	-	-
Socket Memory	Max 8 GB on two 200-pin SODIMM	Max 8 GB on two 200-pin SODIMM	Max 8 GB on two 200-pin SODIMM
Cache (L2)	L2 depends on processor type 1MB, 3MB or 4MB	L2 depends on processor type 1M, 3MB or 6MB	L2 depends on processor type 1M, 3MB or 6MB
BIOS Type	AMI EFI, American Megatrend	AMIBIOS®8, American Megatrend	AMIBIOS®8, American Megatrend
BIOS Features	Serial Console redirection EEPROM CMOS backup, USB boot/legacy, PXE support	Serial Console redirection EEPROM CMOS backup, USB boot/legacy, PXE support	Serial Console redirection EEPROM CMOS backup, USB boot/legacy, PXE support
BIOS Flash	8 Mbit Flash SPI	8 Mbit Flash SPI	8 Mbit Flash SPI
Graphics Controller	Gen 5.75 with 12 execution units	Intel® GMA X4500 at 533/320 MHz	Intel® GMA X4500 at 533 MHz
Graphics Memory	Max 829 MB UMA	Max 829 MB UMA	Max 829 MB UMA
Integrated Display Support	CRT (QXGA) single/dual 18/24-bit LVDS (UXGA)	CRT (QXGA) single/dual 18/24-bit LVDS (UXGA) TV-out (PAL/NTSC/HDTV)	CRT (QXGA) single/dual 18/24-bit LVDS (UXGA) TV-out (PAL/NTSC/HDTV)
External Graphics Bus	PCIe x16 Graphics port, Embedded DisplayPort	PCIe x16 PEG port, DisplayPort dual SDVO ports, HDMI	PCIe x16 Graphics port, DisplayPort dual SDVO ports, HDMI
Compatibility	OpenGL 2.1, DirectX 10	OpenGL 2.0, DirectX 10	OpenGL 2.0, DirectX 10
Parallel ATA (IDE)	one channel, one device	one channel, one device	one channel, one device
Serial ATA	four SATA-300 ports	three SATA-300 ports (optional 4)	three SATA-300 ports (optional 4)
Matrix Storage Support	optional	optional	optional
Ethernet	integrated Intel® GbE (10/100/1000)	integrated Intel® GbE (10/100/1000)	integrated Intel® GbE (10/100/1000)
USB	8 ports USB v2.0	8 ports USB v2.0	8 ports USB v2.0
Audio	Intel® HD Audio	Intel® HD Audio	Intel® HD Audio
Watchdog	Yes	Yes	Yes
TPM	Yes, Ver. 1.2	Yes, Ver. 1.2	Yes, Ver. 1.2
PCI Express Support	6x PCI-Express x1 (or 1 x4) PCI-Express x8, x4 or x1 (on PEG)	5x PCI-Express x1 (or 1 x4) PCI-Express x8, x4 or x1 (on PEG)	5x PCI-Express x1 (or 1 x4) PCI-Express x8, x4 or x1 (on PEG)
PCI Suport	4x PCI rev. 2.3, 32-bit, 33MHz	4x PCI rev. 2.3, 32-bit, 33MHz	4x PCI rev. 2.3, 32-bit, 33MHz
LPC Support	Yes	Yes	Yes
Management Bus	I²C, SMBus	I²C, SMBus	I²C, SMBus
Power	12V only (AT), 12V and 5Vsb (ATX)	12V only (AT), 12V and 5Vsb (ATX)	12V only (AT), 12V and 5Vsb (ATX)
Power States	S0, S1, S3, S4, S5	S0, S1, S3, S4, S5	S0, S1, S3, S4, S5
Power Consumption	TBD	14.5 W with Core™2 Duo SU9300 at 1.2 GHz and 2 GB memory typical	TBD W with Core™2 Duo P8400 at 2.26 GHz and 2 GB memory typical
Operating Temperature	0 ~ +60° Celsius	0 ~ +60° Celsius	0 ~ +60° Celsius
Extended Temperature	TBD	selected modules: -20 ~ +70°C	TBD
Compatibility	PICMG® COM Express™ R1.0, Type 2	PICMG® COM Express™ R1.0, Type 2	PICMG® COM Express™ R1.0, Type 2
Dimensions	Basic Form Factor (95x125 mm)	Basic Form Factor (95x125 mm)	Basic Form Factor (95x125 mm)
Solid State Disk on Module	optional SATA SSD 8 GB and up	-	-
BSP & Software Support	Windows® XP/Xpe, Windows® Vista, Windows® 7 Windows® CE, Linux® 2.6.x, AIDL	Windows® XP/Xpe, Windows® Vista, Windows® 7 Windows® CE, Linux® 2.6.x, AIDL library	Windows® XP/Xpe, Windows® Vista, Windows® 7 Windows® CE, Linux® 2.6.x, AIDL library
Page Number	9-7	9-9	9-11

Basic (125 x 95 mm)



	Express-MC800	Express-NR	Express-AT
CPU Type	Intel® Core™2 Duo (Merom) up to 2.2 GHz with 4 MB L2 cache	Intel® Core™2 Duo (Merom/Yonah) up to 2.2 GHz with 4MB L2 cache	Intel® Atom™ up to 1.6 GHz with 512 KB L2 cache
CPU Package	µFC-PGA (Socket-P) or µFC-BGA	µFC-PGA (Socket-M) or µFC-BGA	µFC-BGA
CPU Speeds / Numbers	Celeron® M 550 (socket) Core™2 Duo (Merom) U7500, L7500 Core™2 Duo T7500 (socket)	Celeron® M 423, 440/530 Core™2 Duo L7400, U7500, U2500 Core™2 Duo T7400 (socket)	Intel® Atom™ N270 at 1.6 GHz
FSB Speed	800/667/533	667/533	533
Main Chipset	Intel® GME965 with ICH8M	Intel® 945GME with ICH7M	Intel® 945GSE with ICH7M
System Memory	4 GB (max), dual channel	4 GB (max), dual channel	2 GB (max), single channel
Memory Type	Dual channel DDR2 667/533	Dual channel DDR2 667/533	DDR2 533
Soldered Memory	-	-	-
Socket Memory	Max 4 GB on two 200-pin SODIMM	Max 4 GB on two 200-pin SODIMM	Max 2 GB on single 200-pin SODIMM
Cache (L2)	L2 depends on processor type 2MB or 4MB	L2 depends on processor type 1MB, 2MB or 4MB	L2 cache 512 KB
BIOS Type	AMIBIOS®8, American Megatrend	AMIBIOS®8, American Megatrend	AMIBIOS®8, American Megatrend
BIOS Features	Serial Console redirection EEPROM CMOS backup, USB boot/legacy, PXE support	Serial Console redirection EEPROM CMOS backup, USB boot/legacy, PXE support	Serial Console redirection EEPROM CMOS backup, USB boot/legacy, PXE support
BIOS Flash	8 Mbit Flash SPI	8 Mbit Flash SPI	8 Mbit Flash SPI
Graphics Controller	Intel® GMA X3100	Intel® GMA 950	Intel® GMA 950
Graphics Memory	Max 384 MB UMA	Max 256 MB UMA	Max 256 MB UMA
Integrated Display Support	CRT (QXGA) single/dual 18/24-bit LVDS (UXGA) TV-out (PAL/NTSC/HDTV)	CRT (QXGA) single/dual 18/24-bit LVDS (UXGA) TV-out (PAL/NTSC/HDTV)	CRT (QXGA) single/dual 18/24-bit LVDS (UXGA) TV-out (PAL/NTSC/HDTV)
External Graphics Bus	PCIe x16 Graphics Port, or dual SDVO ports	PCIe x16 Graphics Port, or dual SDVO ports	Single SDVO port
Compatibility	OpenGL 2.0, DirectX 10	OpenGL 1.4, DirectX® 9.0c	OpenGL 1.4, DirectX® 9.0c
Parallel ATA (IDE)	one channel, two devices	one channel, two devices	one channel, two devices
Serial ATA	three SATA-300 ports	two SATA 150 ports	two SATA 150 ports
Matrix Storage Support	optional (ICH8EM)	optional (ICH7MDH)	-
Ethernet	integrated Intel® GbE (10/100/1000)	Intel® 82573 GbE Ethernet (10/100/1000)	Realtek RTL8111C GbE (10/100/1000)
USB	8 ports USB v2.0	8 ports USB v2.0	8 ports USB v2.0
Audio	Intel® HD Audio	Intel® HD Audio and AC'97	Intel® HD Audio and AC'97
Watchdog	Yes	Yes	Yes
TPM	Yes, Ver. 1.2	Yes, Ver. 1.2	Yes, Ver. 1.2
PCI Express Support	5x PCI-Express x1 (or 1 x4) PCI-Express x8, x4 or x1 (on PEG)	5x PCI-Express x1 (or 1 x4) PCI-Express x1 (on PEG)	3x PCI-Express x1 (optional 5 PCI Express x1)
PCI Support	4x PCI rev. 2.3, 32-bit, 33MHz	4x PCI Ver. 2.3, 32-bit, 33MHz	4x PCI Ver. 2.3, 32-bit, 33MHz
LPC Support	Yes	Yes	Yes
Management Bus	I²C, SMBus	I²C, SMBus	I²C, SMBus
Power	12V only (AT), 12V and 5Vsb (ATX)	12V only (AT), 12V and 5Vsb (ATX)	12V only (AT), 12V and 5Vsb (ATX)
Power States	S0, S1, S3, S4, S5	S0, S1, S3, S4, S5	S0, S1, S3, S4, S5
Power Consumption	19 W with Core™2 Duo U7500 at 1.06 GHz and 2 GB memory typical	16 W with Core™2 Duo U7500 at 1.06 GHz and 1 GB memory typical	9 W with Atom® N270 at 1.6GHz and 1 GB DDR2 typical
Operating Temperature	0 ~ +60° Celsius	0 ~ +60° Celsius	0 ~ +60° Celsius
Extended Temperature	-	selected modules: -20 ~ +70°C	selected modules: -20 ~ +70°C
Compatibility	PICMG® COM Express™ R1.0, Type 2	PICMG® COM Express™ R1.0, Type 2	PICMG® COM Express™ R1.0, Type 2
Dimensions	Basic Form Factor (95x125 mm)	Basic Form Factor (95x125 mm)	Basic Form Factor (95x125 mm)
Solid State Disk on Module	-	-	optional PATA SSD 512 MB up to 4 GB
BSP & Software Support	Windows® XP/Xpe, Windows® Vista Linux® 2.6.x, AIDL library	Windows® XP/Xpe, Windows® Vista Windows® CE, Linux® 2.6.x, AIDL library	Windows® XP/Xpe, Windows® Vista Windows® CE, Linux® 2.6.x, AIDL library
Page Number	9-13	9-15	9-17

Basic (125 x 95 mm)



Express-DW400

Intel® Core™2 Duo (Merom)

μFC-PGA (socket-M) or μFC-BGA

Celeron® M 423, 440/530
Core™2 Duo L7400, U7500, U2500
Core™2 Duo T7400 (socket)

667/533

Intel® 3100

4 GB (max)

DDR2 400 registered ECC

-

Max 4 GB on two 200-pin SO-RDIMM

L2 depends on processor type
1MB, 2MB or 4MB

Phoenix® Award

Serial Console redirection
EEPROM CMOS backup,
USB boot/legacy, PXE support

FWH, 8 Mbit Flash

optionally on carrier board

-

-

-

-

one device (SATA to PATA)

4 SATA-150 ports

-

Intel® 82573 GbE Ethernet (10/100/1000)

4 ports USB v2.0

-

Yes

Yes

2x PCIe x4 with EDMA (or 1 x8)
3x PCIe x1

4x PCI rev. 2.3, 32-bit, 33MHz

Yes

I²C, SMBus

12V only (AT), 12V and 5Vsb (ATX)

S0, S1, S3, S4, S5

25 W with Intel® Core™2 Duo L7400 at 1.5GHz
and 1 GB DDR2

0 ~ +60° Celsius

-

PICMG® COM Express™ R1.0, Type 2

Basic Form Factor (95x125 mm)

-

Linux® 32/64-bit, Windows® XP/Xpe
AIDI library

9-19



Express-IA533

Intel® Pentium® M

Intel® Celeron® M (3xx series)

μFC-PGA (socket) or μFC-BGA

Celeron® M: 600MHz up to 1.5GHz
Pentium® M: 1.1GHz up to 2.0GHz

533/400

Intel® 915GM with ICH6-M

2 GB (max), dual channel

DDR2 400/533

512MB soldered onboard

Max 1 GB on 200-pin SODIMM

L2 depends on processor type
0KB, 512KB, 1MB or 2MB

Phoenix® Award

Serial Console redirection
EEPROM CMOS backup,
USB boot/legacy, PXE support

FWH, 4 Mbit Flash

Intel® GMA 900

Max 128 MB UMA

CRT (QXGA)

Dual channel 18-bit LVDS (UXGA)
TV-out (PAL/NTSC/HDTV) optional

PCIe x16 Graphics Port, or dual SDVO ports

OpenGL 1.4, DirectX® 9.0

one channel, two devices

two SATA-150 ports

-

Marvell Yukon GbE (10/100/1000)

6 ports USB v2.0

Intel® HD Audio and AC'97

Yes

-

3x PCI-Express x1
1x PCI-Express x1 (on PEG)

4x PCI rev. 2.3, 32-bit, 33MHz

Yes

I²C, SMBus

12V only (AT), 12V and 5Vsb (ATX)

S0, S1, S3, S4, S5

12 W with Celeron® M 373
at 1.0 GHz and 512 MB DDR2 typical

0 ~ +60° Celsius

-

PICMG® COM Express™ R1.0, Type 2

Basic Form Factor (95x125 mm)

-

Windows® XP/Xpe
Linux® 2.6.x, AIDI library

9-21

Compact (95 x 95 mm)

NEW



Express-ATC

Intel® Atom™

up to 1.6 GHz with 512 KB L2 cache

μFC-BGA

Intel® Atom™ N270 at 1.6 GHz

533

Intel® 945GSE with ICH7M

2 GB (max), single channel

DDR2 533

-

Max 2 GB on single 200-pin SODIMM

L2 cache 512 KB

AMIBIOS®8, American Megatrend

Serial Console redirection
EEPROM CMOS backup,
USB boot/legacy, PXE support

8 Mbit Flash SPI

Intel® GMA 950

Max 256 MB UMA

CRT (QXGA)
single/dual 18/24-bit LVDS (UXGA)
TV-out (PAL/NTSC/HDTV)

Single SDVO port

OpenGL 1.4, DirectX® 9.0c

one channel, two devices

two SATA 150 ports

-

Realtek RTL8111C GbE (10/100/1000)

6 ports USB v2.0

Intel® HD Audio and AC'97

Yes

Yes

3x PCI-Express x1
(optional 5 PCI Express x1)

4x PCI rev. 2.3, 32-bit, 33MHz

Yes

I²C, SMBus

12V only (AT), 12V and 5Vsb (ATX)

S0, S1, S3, S4, S5

9 W with Atom® N270
at 1.6GHz and 1 GB DDR2 typical

0 ~ +60° Celsius

selected modules: -20 ~ +70°C

PICMG® COM Express™ R1.0, Type 2

Compact Form Factor (95x95 mm)

optional SSD 512 MB up to 4 GB

Windows® XP/Xpe, Windows® Vista
Windows® CE, Linux® 2.6.x, AIDI library

9-23

Ultra (84 x 55 mm)

NEW



nanoX-ML

Intel® Atom™

up to 1.6 GHz with 512 KB L2 cache

Intel® Atom™ Z530 at 1.6 GHz

Intel® Atom™ Z510 at 1.1 GHz

533/400

Intel® SCH US15W

1 GB (max), single channel

DDR2 400/533

512 MB or 1 GB DDR2 466/533 MHz

-

L2 cache 512 KB

AMIBIOS®8, American Megatrend

Serial Console redirection
EEPROM CMOS backup,
USB boot/legacy, PXE support

FWH, 8 Mbit Flash

Intel® GMA 500

Max 256 MB UMA

single channel 18/24-bit LVDS (WXGA)
supports HDTV/DHD decode and
MPEG, H.264, hardware decoding

Single SDVO port

OpenGL 2.0, DirectX 10

one channel, one device

one SATA-150 port

-

Realtek RTL8111C GbE (10/100/1000)

8 ports USB v2.0

Intel® HD Audio

Yes

Yes

1x PCIe x1
(optional 2x PCIe without LAN function)

-

Yes

I²C, SMBus

4.75V ~ 14V wide range (5Vsb optional for ATX function)

S0, S1, S3, S4, S5

5 W with Atom® Z510 at 1.1 GHz and 512 MB
DDR2 typical

0 ~ +60° Celsius

selected modules: -20 ~ +70°C

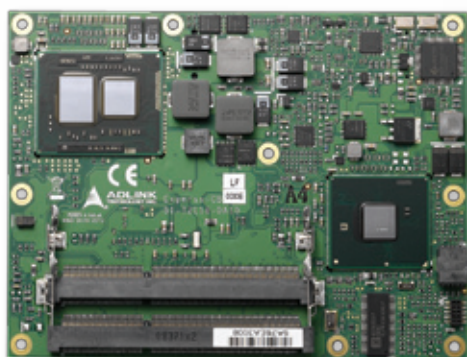
PICMG® COM Express™ R1.0, Type 1

Ultra Form Factor (84x55mm)

optional SSD 1 GB up to 8 GB

Windows® XP/Xpe, Windows® CE,
Linux® Moblin, AIDI library

9-27



Features

- Intel® Core™ i7/i5 Processor
- Intel® QM57 chipset
- Up to 8 GB Dual Channel DDR3 SDRAM at 1066 MHz
- Six PCIe x1, one PCIe x16 for graphics (or general purpose x8/4/1)
- 18/24-bit LVDS and Embedded Displayport
- SATA-300, IDE (PATA), Gigabit LAN, USB 2.0

Specifications

Core System

CPU	Arrandale BGA type Intel® Core™ i7-620E, 2.26 GHz (3.33/3.06 S/D Turbo) with 4MB L2 cache, 35 W Intel® Core™ i7-620LE, 2.0 GHz (2.8/2.53 S/D Turbo) with 4MB L2 cache, 25 W Intel® Core™ i7-620UE, 1.06 GHz (2.13/1.73 S/D Turbo) with 4MB L2 cache, 18 W Intel® Core™ i5-520E, 2.4 GHz (2.93/2.66 S/D Turbo) with 3MB L2 cache, 35 W Intel® Celeron® TBD
Memory	Dual stacked SODIMM socket supporting dual channel memory max. 8 GB of non-ECC, 800/1066 MHz DDR3
Chipset	Intel® Mobile QM57 or Intel® Mobile HM55
L2 Cache	2 MB (Celeron® M), 4/3 MB (Intel® Core™ i7 / i5)
BIOS	AMI EFI with CMOS backup in 16 Mbit SPI BIOS
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	Programmable timer ranges to generate RESET
Expansion Busses	PCI Express x16 bus for discrete graphics solution or general purpose PCI Express (2 x8 or 2 x4 or 2 x1) or Embedded Display Port (eDP) 7 PCI Express x1: Lanes 0/1/2/3/4/5 are free, lane 6 is occupied by GbE LAN; can be optionally configured as 1 x4 (on 0/1/2/3) and 2 x1 (4/5) 32-bit PCI: PCI Rev. 2.3 at 33MHz, supporting 4 bus masters LPC bus, SMBus (system), I²C (user)

Video

Integrated with Processor	Gen 5.75 with 12 execution units
Integrated Video	DirectX 10 and OpenGL 2.1
Feature Support	Intel® Dynamic Video Memory Technology (Intel® DVMT 5.0) Video capture via x1 concurrent PCI Express port PAVP (Protected Audio-Video Path) support for Protected Intel HD Audio Playback High performance MPEG-2 decoding WMV9 (VC-1) and H.264 (AVC) support Hardware acceleration for MPEG2 VLD/iDCT Microsoft DirectX 10 support OpenGL 2.1 support Blu-ray support @ 40 Mb/s Hardware motion compensation Intermediate Z in classic rendering
CRT Interface	Analog CRT support by 300-MHz DAC Analog monitor support up to QXGA (2048 X 1536)
LVDS Interface	Single / Dual channel 18- or 24-bit panels
Embedded DisplayPort	TBD

Audio

Chipset	Integrated on Intel® PCH QM57
Audio Codec	On carrier (ALC888)

LAN

Chipset	Integrated on QM57 with TBD PHY
Interface	10/100/1000 Mbps Ethernet

Multi I/O

Chipset	Integrated on Intel® PCH QM57
USB	Supports up to eight ports USB v. 2.0
SATA	Four ports SATA-300 with optional support for RAID 0,1,5,10
SATA SSD	Optional SATA based Solid State Disk 8/16/32 GB
PATA	SATA to PATA bridge on SATA channel 1, Master only

Super I/O

Connected to LPC bus on carrier if needed

TPM

Chipset	Infineon SLB9635TT1.2
Type	TPM 1.2

Power Specifications

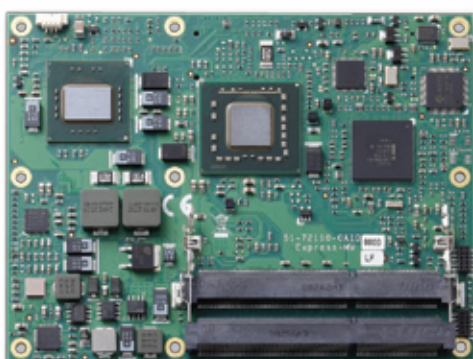
Input Power	AT mode (12 V +/- 5%) and ATX mode (12 V and 5 Vsb +/- 5%)
Power States	Supports S0, S1, S3, S4, S5
Power Consumption	TBD
Smart Battery Support	Yes

Mechanical and Environmental

Operating Temp	0°C to 60°C
Storage Temp	-20°C to 80°C
Humidity	90% at 60°C
Shock	15G peak-to-peak, 11ms duration, non-operation
Vibration	Non-operation: 1.88 Grms, 5-500 Hz, each axis
Operation	0.5 Grms, 5-500 Hz, each axis
Compatibility	COM Express™ Type 2, standard form factor 125 mm x 95 mm
Certification	CE, FCC

Operating Systems

Standard Support	Windows® XP(e) / Vista / Windows® 7 Linux®
Extended Support (BSP)	Embedded XP support package Linux® 2.6.x BSP (with Xorg OpenGL setup instructions) BSP Vxworks 6.x BSP (on request) AIDI I²C Library for Windows and Linux



Features

- Intel® Core™2 Duo processor (up to 2.26 GHz)
- Intel® GS45 and ICH9M-SFF chipset
- Dual SODIMM for up to 8 GB DDR3 at 1066 MHz
- Five PCIe x1, one PCIe x16 for graphics (or general purpose x8, x4 or x1)
- Single/dual channel 18/24-bit LVDS and TV-out (SDTV and HDTV)
- SATA-300, IDE (PATA), Gigabit LAN, USB 2.0

Specifications

Core System

CPU	Penryn SFF BGA type Intel® Core™2 Duo SP9300, FSB 1066, 2.26 GHz with 6MB L2 cache, 25 Watt Intel® Core™2 Duo SL9400, FSB 1066, LV 1.86 GHz with 6MB L2 cache, 17 Watt Intel® Core™2 Duo SU9300, FSB 800, ULV 1.2 GHz with 3MB L2 cache, 10 Watt Intel® Celeron® M 722, FSB 800, ULV 1.2GHz with 1MB L2 cache, 5.5 Watt
Memory	Dual stacked SODIMM sockets supporting dual channel memory, for max. 8 GB of non-ECC, 800/1066 MHz DDR3
Chipset	Intel® GS45 Express Graphics Memory Controller Hub SFF (Small Form Factor) and Intel® I/O Controller Hub ICH9M-SFF
BIOS	AMIBIOS®8 with CMOS backup in 16 Mbit SPI Flash
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	programmable timer ranges to generate RESET
Expansion Busses	Graphics PCI Express x16 bus for SDVO/HDMI/DisplayPort or general purpose PCI Express (x8 / x4 / x1) 6 PCI Express x1: 0/1/2/3/4 are free, 5 is occupied by GbE LAN; 0/1/2/3 x1 can be optionally configured as 1 x4 32-bit PCI 2.3 at 33MHz, supporting 4 bus masters LPC, SMBus, I²C

Video

Chipset	GS45 GMCH integrated Mobile Intel® Graphics Media Accelerator 4500MHD with core render clock 533-MHz @ 1.05-V core voltage or 266 MHz @ 1.025 L.P. Mode
Integrated Video	Intel® Dynamic Video Memory Technology (Intel® DVM T 5.0)
Feature Support	Video capture via x1 concurrent PCI Express port PAVP (Protected Audio-Video Path) support for Protected Intel® HD Audio Playback High performance MPEG-2 decoding WMV9 (VC-1) and H.264 (AVC) support Hardware acceleration for MPEG2 VLD/IDCT Microsoft DirectX 10 support Blu-ray support @ 40 Mb/s Hardware motion compensation Intermediate Z in classic rendering
CRT Interface	Analog CRT support by 300MHz DAC
LVDS Interface	Analog monitor support up to QXGA, supports CRT hot plug
TV-out	Single / Dual channel 18/24-bit at 25~112 MHz
	NTSC/PAL up to 1024x768 resolution supported
	HDTV 480p/720p/1080i/1080p modes supported (without Macrovision)

Audio

Chipset	Integrated on Intel® ICH9M
Audio Codec	HDA codec on carrier
HDMI	Audio routed to HDMI interface

LAN

Chipset	Integrated on Intel® ICH9M with Intel® 82567LM PHY
Interface	10/100/1000 Mbps Ethernet

Multi I/O

Chipset	Integrated on Intel® ICH9M
USB	Supports up to eight ports USB v. 2.0
SATA	Four ports SATA-300 with (optional) support for RAID 0,1,5,10
PATA	SATA to PATA JM20330 controller on SATA channel 3, Master only

Super I/O

Connected to LPC bus on carrier if needed

TPM

Chipset	Infineon SLB9635TT1.2
Type	TPM 1.2

Power Specifications

Input Power	AT mode (12 V +/- 5%) and ATX mode (12 V and 5 Vsb +/- 5%)
Power States	Supports S0, S1, S3, S4, S5
Power Consumption	14.5 W (with Core™2 Duo SU9300 and 2 GB memory typical)

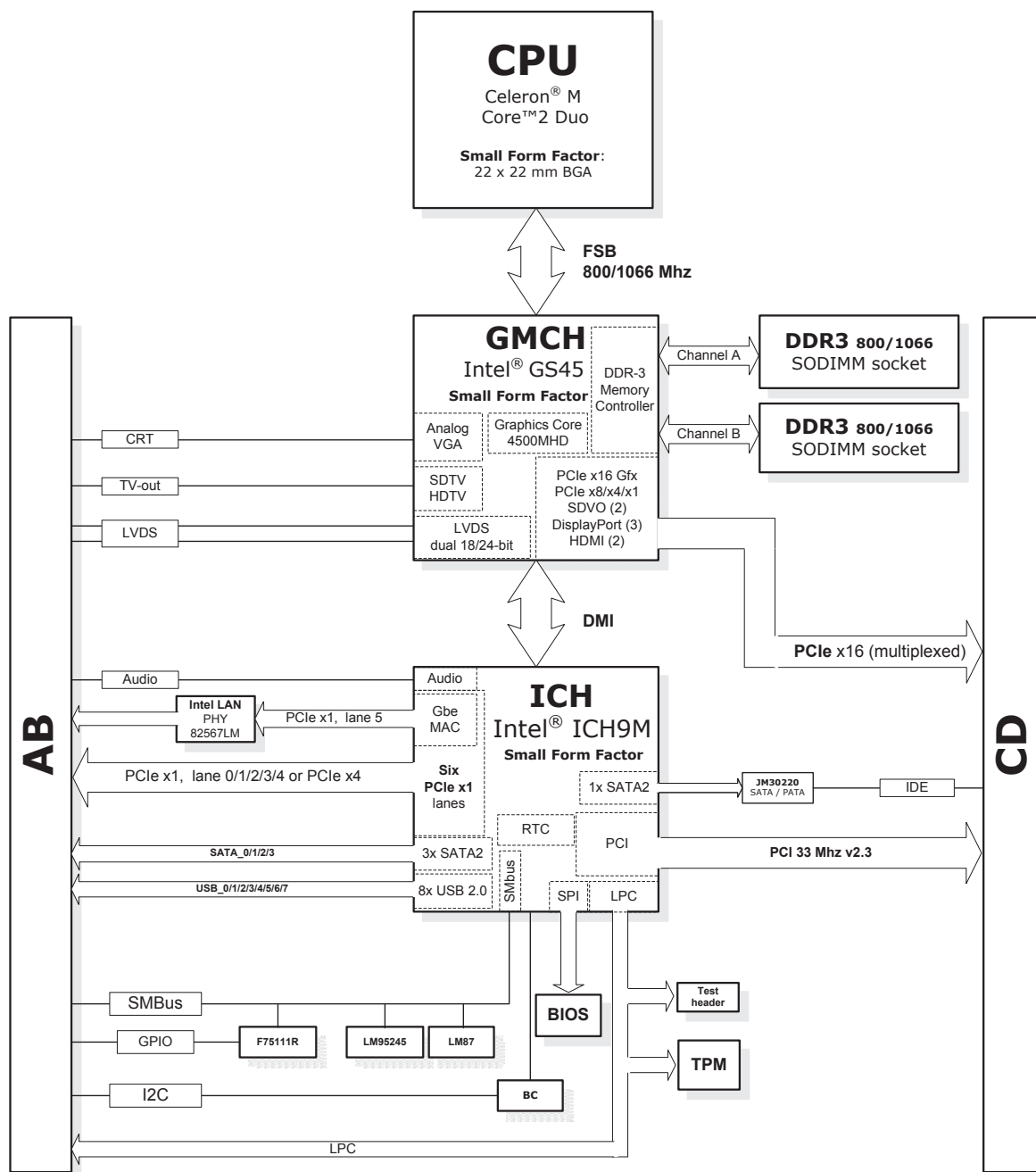
Mechanical and Environmental

Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Humidity	90% at 60°C
Shock	15G peak-to-peak, 11ms duration, non-operation
Vibration	Non-operation: 1.88 Grms, 5-500 Hz, each axis Operation: 0.5 Grms, 5-500 Hz, each axis
Form Factor	COM Express™ Type 2, standard 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 2003/2008 Linux® 2.6.x
Extended Support	Embedded XP BSP Linux® 2.6.x BSP WinCE 6.0 BSP AIDI I²C Library for Win32, WinCE and Linux®

Functional Diagram



Ordering Information

Modules

Model Number	Description/Configuration
Express-MV-SP9300	COM Express™ Module with Intel® Core™2 Duo processor SP9300 at 2.26 GHz
Express-MV-SL9400	COM Express™ Module with LV Intel® Core™2 Duo processor SL9400 at 1.86 GHz
Express-MV-SU9300	COM Express™ Module with ULV Intel® Core™2 Duo processor SU9300 at 1.20 GHz
Express-MV-722	COM Express™ Module with ULV Intel® Celeron® M processor 722 at 1.20 GHz

Accessories

Model Number	Description/Configuration
Heat Spreaders	
HTS-MV-B	Heatspreader for Express-MV (BGA CPU) with threaded standoffs
Passive Heatsinks	
THS-MV-BL	Low Profile Heatsink for Express-MV (BGA CPU) with threaded standoffs for bottom mounting with long cooling fins (incl screws for 5 and 8 mm btb)
Heatsink with Active Cooling	
THSF-MV-B	High Performance Heatsink with Fan for Express-MV (BGA CPU) with threaded standoffs



Features

- Intel® Core™2 Duo processor (up to 2.53 GHz)
- Intel® GM45 and ICH9M chipset
- Dual SODIMM for up to 8 GB DDR3 at 1066 MHz
- Five PCIe x1, one PCIe x16 for graphics (or general purpose x8, x4 or x1)
- Single/dual channel 18/24-bit LVDS and TV-out (SDTV and HDTV)
- SATA-300, IDE (PATA), Gigabit LAN, USB 2.0

Specifications

Core System

CPU	Socket P Intel® Core™2 Duo T9400, FSB 1067, 2.53 GHz with 6-MByte L2 cache, 35 Watt Intel® Core™2 Duo P8400, FSB 1067, 2.26 GHz with 3-MByte L2 cache, 25 Watt Intel® Dual Celeron® M T3100, FSB 800, 1.90 GHz with 1-MByte L2 cache, 35 Watt Intel® Celeron® M 575, FSB 667, 2.00 GHz with 1-MByte L2 cache, 31 Watt
Memory	Two SODIMM sockets (one on top, one on bottom) supporting dual channel memory, for max. 8 GB of non-ECC, 800/1067 MHz DDR3
Chipset	Intel® GM45 Express Graphics Memory Controller Hub and Intel® I/O Controller Hub 82801IEM (ICH9M-E)
L2 Cache	1 MB (Celeron® M), 6/3 MB (Core™2 Duo)
BIOS	AMIBIOS®8 with CMOS backup in 16 Mbit SPI Flash
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	Programmable timer ranges to generate RESET
Expansion Busses	Graphics PCI Express x16 bus or SDVO/HDMI/DisplayPort or general purpose PCI Express (x8/x4/x1) 6 PCI Express x1: Lanes 0/1/2/3/4 are free, lane 5 is occupied by GbE LAN; lanes 0/1/2/3 x1 can be optionally configure as 1 x4 32-bit PCI: PCI Rev. 2.3 at 33MHz, supporting 4 bus masters LPC bus, SMBus (system), I²C (user)

Video

Chipset	GM45 GMCH integrated Mobile Intel® Graphics Media Accelerator X4500 with core render clock 533-MHz @ 1.05 Vcore
Integrated Video	Intel® Dynamic Video Memory Technology (Intel® DVMT 5.0)
Feature Support	Video capture via x1 concurrent PCI Express port PAVP (Protected Audio-Video Path) support for Protected Intel® HD Audio Playback High performance MPEG-2 decoding WMV9 (VC-1) and H.264 (AVC) support Hardware acceleration for MPEG2 VLD/iDCT Microsoft DirectX 10 support OpenGL 2.1 support Blu-ray support @ 40 Mb/s Hardware motion compensation Intermediate Z in classic rendering
CRT Interface	Analog CRT support by 300-MHz DAC Analog monitor support up to QXGA and support for CRT hot plug
LVDS Interface	Single / Dual channel 18- or 24-bit panels
TV-out	NSTC/PAL up to 1024x768 resolution supported HDTV 480p/720p/1080i/1080p modes supported (without Macrovision)

Audio

Chipset	Integrated on Intel® I/O Controller Hub 9 Mobile (ICH9M)
Audio Codec	On carrier (ALC888)
HDMI	Audio routed to HDMI interface

LAN

Chipset	Integrated on ICH9M with Intel 82567LM PHY
Interface	10/100/1000 Mbps Ethernet

Multi I/O

Chipset	Integrated on Intel® I/O Controller Hub 9 Mobile (ICH9M)
USB	Supports up to eight ports USB v. 2.0
SATA	Four ports SATA-300 with optional support for RAID 0,1,5,10
PATA	SATA to PATA JM330 controller on SATA channel 3, Master only (can be removed to free up fourth SATA channel)

Super I/O

Connected to LPC bus on carrier if needed

TPM

Chipset	Infineon SLB9635TT1.2
Type	TPM 1.2

Power Specifications

Input Power	AT mode (12 V +/- 5%) and ATX mode (12 V and 5 Vsb +/- 5%)
Power States	Supports S0, S1, S3, S4, S5
Power Consumption	14.5 W (with Core™2 Duo SU9300 and 2 GB memory, typical)
Smart Battery Support	Yes

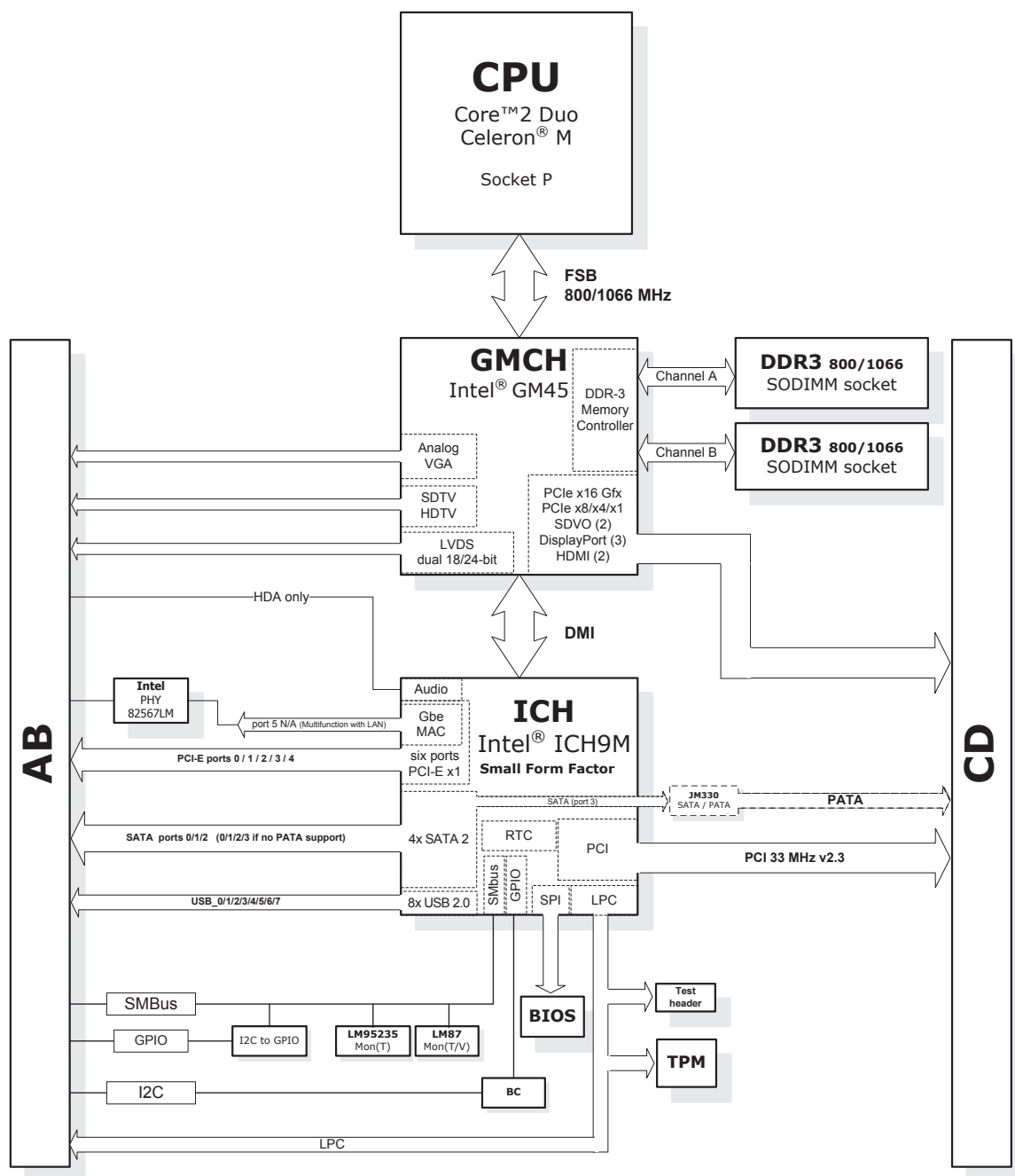
Mechanical and Environmental

Operating Temp	0°C to 60°C
Storage Temp	-20°C to 80°C
Humidity	90% at 60°C
Shock	15G peak-to-peak, 11ms duration, non-operation
Vibration	Non-operation: 1.88 Grms, 5-500 Hz, each axis
Operation	0.5 Grms, 5-500 Hz, each axis
Compatibility	COM Express™ Type 2, standard formfactor 125 mm x 95 mm
Certification	CE, FCC

Operating Systems

Standard Support	Windows® XP(e) / Vista / Windows® 7 Linux®
Extended Support (BSP)	Embedded XP support package Linux® 2.6.x BSP (with Xorg OpenGL setup instructions) Vxworks 6.x BSP (on request) AIDI I²C Library for Windows and Linux®

Functional Diagram



Ordering Information

Modules

Model Number	Description/Configuration
Express-MG-S/T9400	COM Express™ Module with socket type Intel® Core™2 Duo processor T9400 at 2.53 GHz
Express-MG-S/P8400	COM Express™ Module with socket type Intel® Core™2 Duo processor P8400 at 2.26 GHz
Express-MG-S/T3100	COM Express™ Module with socket type Intel® Dual Core Celeron® processor T3100 at 1.90 GHz
Express-MG-S / 575	COM Express™ Module with socket type Intel® Celeron® processor 575 at 2.00 GHz

Accessories

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

Express-MC800

COM Express™ Module with Intel® Core™2 Duo Processor and GME965 / ICH8-M Chipset



Features

- Intel® Core™2 Duo processor (up to 2.2 GHz)
- Intel® GME965 / ICH8M chipset
- Dual SODIMM for up to 4 GB DDR2 at 800MHz
- Five PCIe x1, one PCIe x16 graphic (or x8)
- Dual-channel 24-bit LVDS, TV-out
- SATA-300, PATA, Gigabit LAN, USB 2.0

Specifications

Core System

CPU	Socket P type Intel® Core™2 Duo T7500, FSB 800, 2.2 GHz with 4MB L2 cache, 34 W Intel® Celeron® M 550, FSB 533, 2.0 GHz, with 1MB L2 cache 27 W BGA type Intel® Core™2 Duo T7500, FSB 800, 2.2 GHz with 4MB L2 cache, 34 W Intel® Core™2 Duo L7500, FSB 800, LV 1.5 GHz with 4MB L2 cache, 17 W Intel® Core™2 Duo U7500, FSB 533, ULV 1.06 GHz with 2MB L2 cache, 10 W
Memory	Dual stacked SODIMM sockets supporting dual channel memory, for max 4 GB of non-ECC, 533/667 MHz DDR2
Chipset	Intel® GME965 GMCH and ICH8-M
BIOS	AMIBIOS®8 with CMOS backup in 8 Mbit SPI BIOS
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 PCI Express x8/x4/x1, or SDVO digital video bus 32-bit PCI 2.3 at 33MHz, supporting 6 bus masters LPC, SMBus, I²C

Video

Chipset	GME965 integrated Mobile Intel® GMA X3100
CRT Interface	Analog CRT support up to 2048 x1536 at 60-Hz, 32-bpp
LVDS Interface	Single / Dual channel 18/24-bit at 25~112 MHz
TV-out	NTSC/PAL up to 1024x768 resolution, HDTV 480p/720p/1080i/1080p modes supported (without Macrovision)

Audio

Chipset	Integrated on Intel® ICH8-M
Audio Codec	HDA codec on carrier

LAN

Chipset	ICH8-M integrated GbE MAC with Intel® 82566 PHY
Interface	10/100/1000 Mbps with Wake-on-LAN and Alert on LAN support

Multi I/O

Chipset	Intel® ICH8-M
IDE (PATA)	Single channel IDE with Ultra ATA 100/66/33 support
SATA	Three ports SATA-300
USB	Up to eight ports USB 2.0

Super I/O

Connected to LPC bus on carrier if needed

TPM

Chipset	Infineon SLB9635TT1.2
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	24 W (with Core™2 Duo L7500 and 2 GB memory typical)

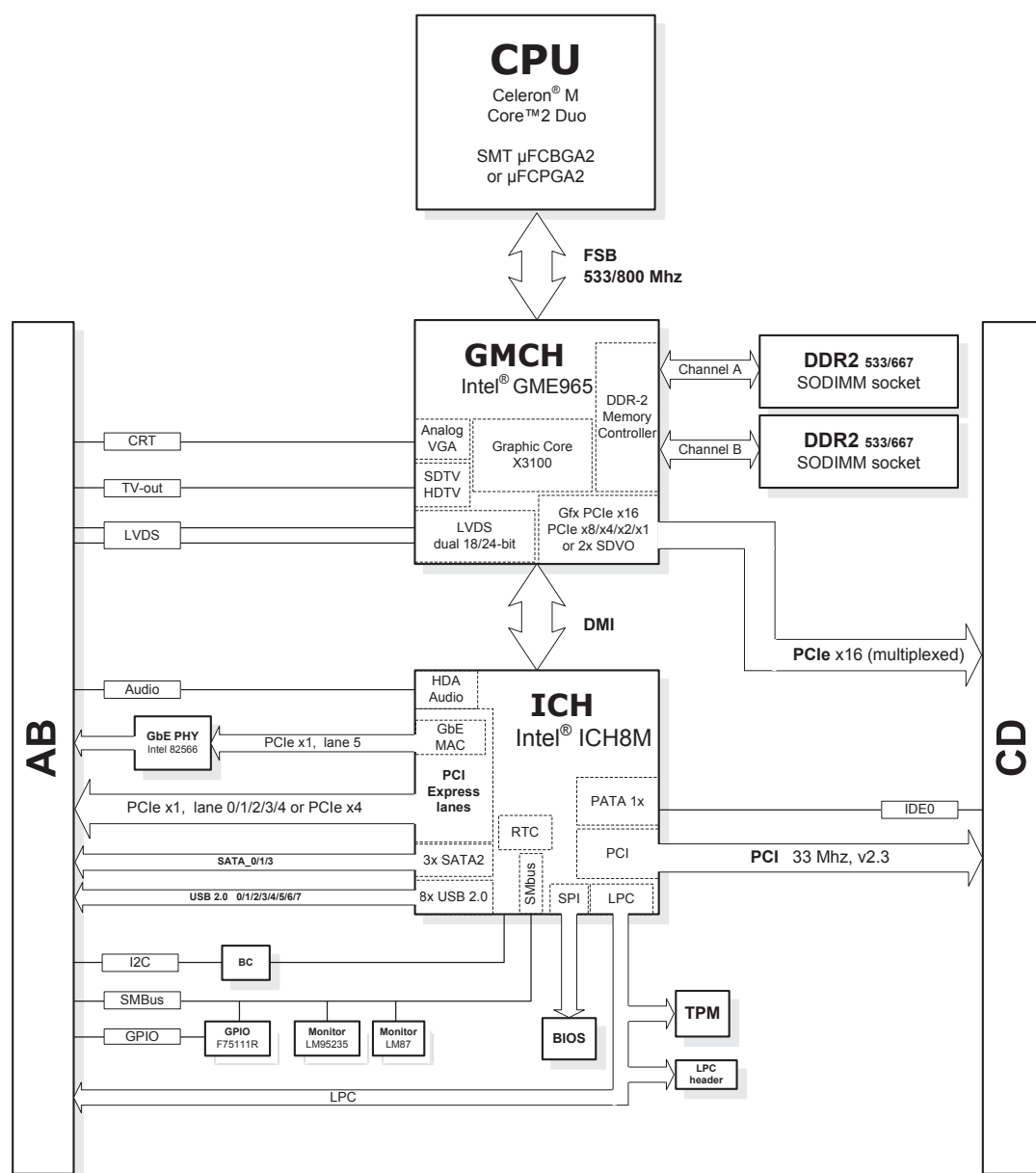
Mechanical and Environmental

Operating Temp.	0°C to 60°C
Storage Temp.	20°C to 80°C
Humidity	90% at 60°C
Shock	15G peak-to-peak, 11ms duration, non-operation
Vibration	Non-operation: 1.88 Grms, 5-500 Hz, each axis Operation: 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 Linux® 2.6.x BSP AIDI I²C Library for Win32, WinCE and Linux®

Functional Diagram



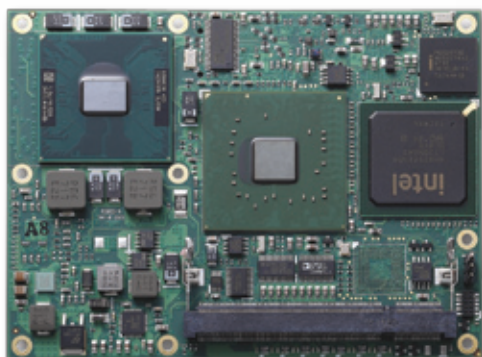
Ordering Information

Modules

Model Number	Description/Configuration
Express-MC800-S	COM Express™ Module with socket for Celeron® M or Core™2 Duo processor (for Intel® Core™2 Duo T7500 processor at 2.2 GHz or Intel® Celeron® M 550 processor at 2.0 GHz)
Express-MC800-L7500	COM Express™ Module with LV Intel® Core™2 Duo L7500 processor at 1.6 GHz
Express-MC800-U7500	COM Express™ Module with ULV Intel® Core™2 Duo U7500 processor at 1.06 GHz

Accessories

Model Number	Description/Configuration
Heat Spreaders	
HTS-MC800-B	Heatspreader for Express-MC800 (BGA CPU) with threaded standoffs
Passive Heatsinks	
THS-MC800-B	Low Profile Heatsink for Express-MC800 (BGA CPU) with threaded standoffs
THSH-MC800-B	High Heatsink for Express-MC800 (BGA CPU) with threaded standoffs
Heatsink with Active Cooling	
THSF-MC800-S	High Performance Heatsink with Fan for Express-MC800 (socket CPU) with threaded standoffs



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, for max 4 GB of non-ECC, 533/667 MHz DDR2

Chipset

Intel® 945GME Express Graphics Memory Controller Hub

BIOS

AMIBIOS®8 with CMOS backup in 8 Mbit SPI BIOS

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

CRT 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 AC97 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-150 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

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

18 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-operation: 1.88 Grms, 5-500 Hz, each axis

Operation: 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

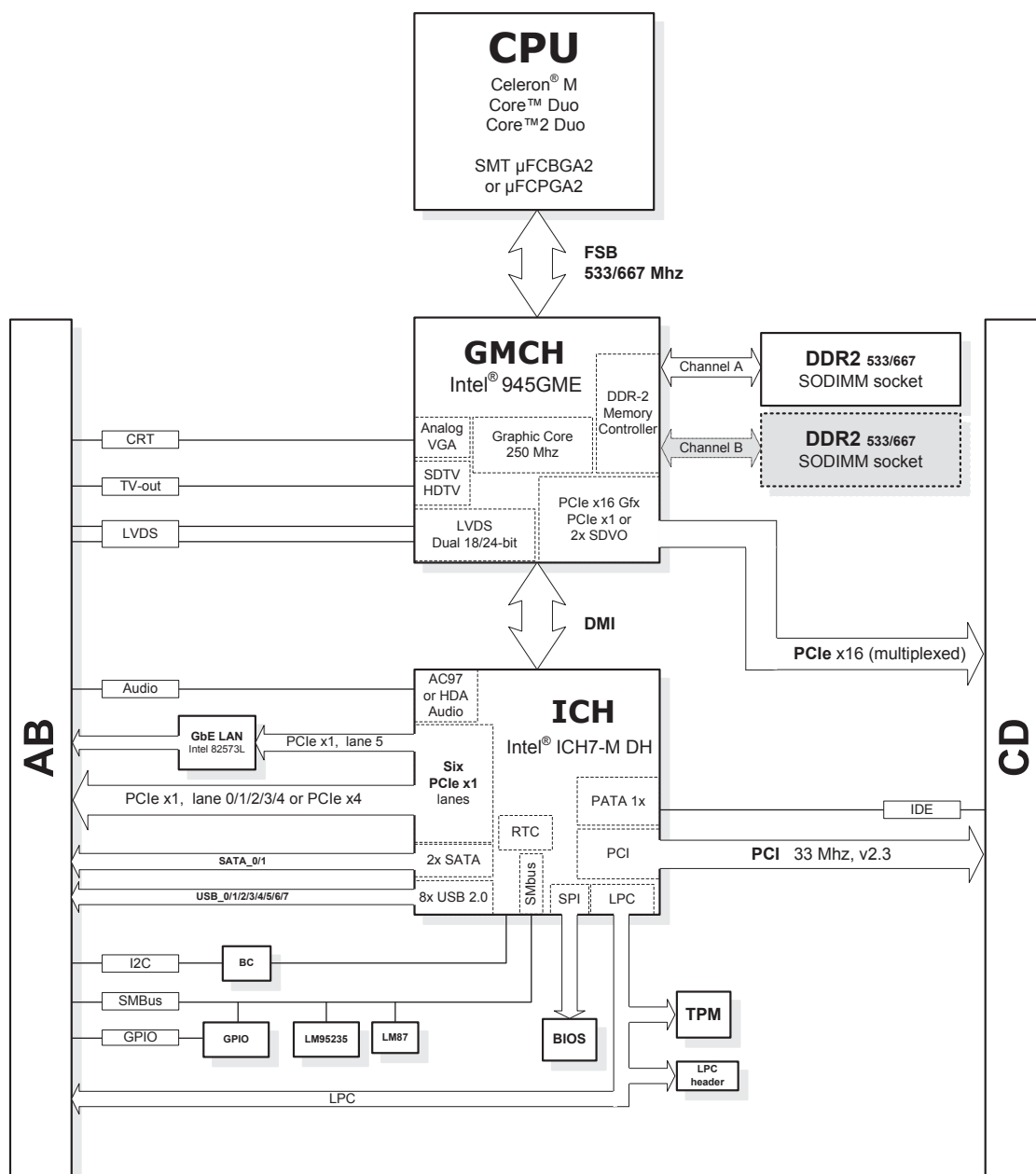
Embedded XP BSP

WinCE BSP

Linux® 2.6.x BSP

AIDI I²C Library for Win32, WinCE and Linux®

Functional Diagram



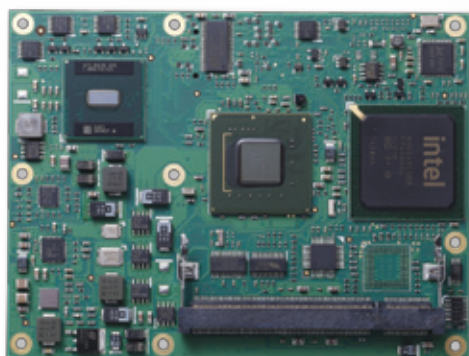
Ordering Information

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



Features

- Intel® Atom™ processor N270 at 1.6 GHz
- Intel® 945GSE / ICH7-M chipset
- SODIMM for up to 2 GB DDR2 at 533 MHz
- Three PCIe x1 (optional 4 x1 or 1 x4)
- High resolution CRT, single/dual 18-bit LVDS and TV-out (SDTV and HDTV)
- SATA, IDE (PATA), Gigabit LAN, USB 2.0
- Optional 512MB~8GB IDE-based Solid State Disk

Specifications

Core System

CPU	BGA type Intel® Atom™ N270, FSB 533, 1.6 GHz with 512 KB L2 cache, 2.5 W, on-die primary 32-KB instruction cache and 24 KB write-back data cache Hyperthreading support (2-threads) Advanced gunning transceiver logic (AGTL+) bus driver technology Enhanced Intel® SpeedStep® Technology Source synchronous double-pumped (2x) Address Source synchronous quad-pumped (4x) Data C0 - C4 low power states supported
Memory	Single SODIMM socket memory, for max 2 GB of non-ECC, 400/533 MHz DDR2
Chipset	Intel® 945GSE Express Graphic Memory Controller Hub and Intel® I/O Controller Hub 7 Mobile (ICH7-M)
BIOS	AMIBIOS®8 with CMOS backup in 8 Mbit SPI BIOS
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	Programmable timer ranges to generate RESET
Expansion Busses	4 PCI Express x1 (0/1/2 are free, 3 is occupied by GbE LAN) optionally configured as x4 Serial Digital Video Out (SDVO) 32-bit PCI 2.3 at 33MHz, supporting 4 bus masters LPC, SMBus, I²C

Video

Chipset	Intel® Graphics Media Accelerator 950 integrated into 945GSE GMCH supporting dual independent displays
CRT Interface	Analog CRT support up to 1600 x 1200
LVDS Interface	Single / Dual channel 18-bit (optional 24-bit on carrier through SDVO)
TV-out	NTSC/PAL up to 1024x768 resolution supported, HDTV 480p/720p/1080i/1080p modes supported (without Macrovision)

Audio

Chipset	Integrated on Intel® I/O Controller Hub 7 Mobile (ICH7-M)
Audio Codec	HDA (Azalia) or AC97 codec on carrier

LAN

Chipset	PCIe x1 Realtek RTL8111C
Interface	10/100/1000 Mbps

Multi I/O

Chipset	Intel® ICH7-M
IDE (PATA)	Single IDE channel with UDMA100 with optional 512MB - 8GB IDE-based Solid State Disk
SATA	Two port SATA-150
USB	Up to eight ports USB 2.0

Super I/O

Connected to LPC bus on carrier if needed

TPM

Chipset	Infineon SLB9635TT1.2
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	9 W typical (with Atom™ N270 and 1 GB memory)

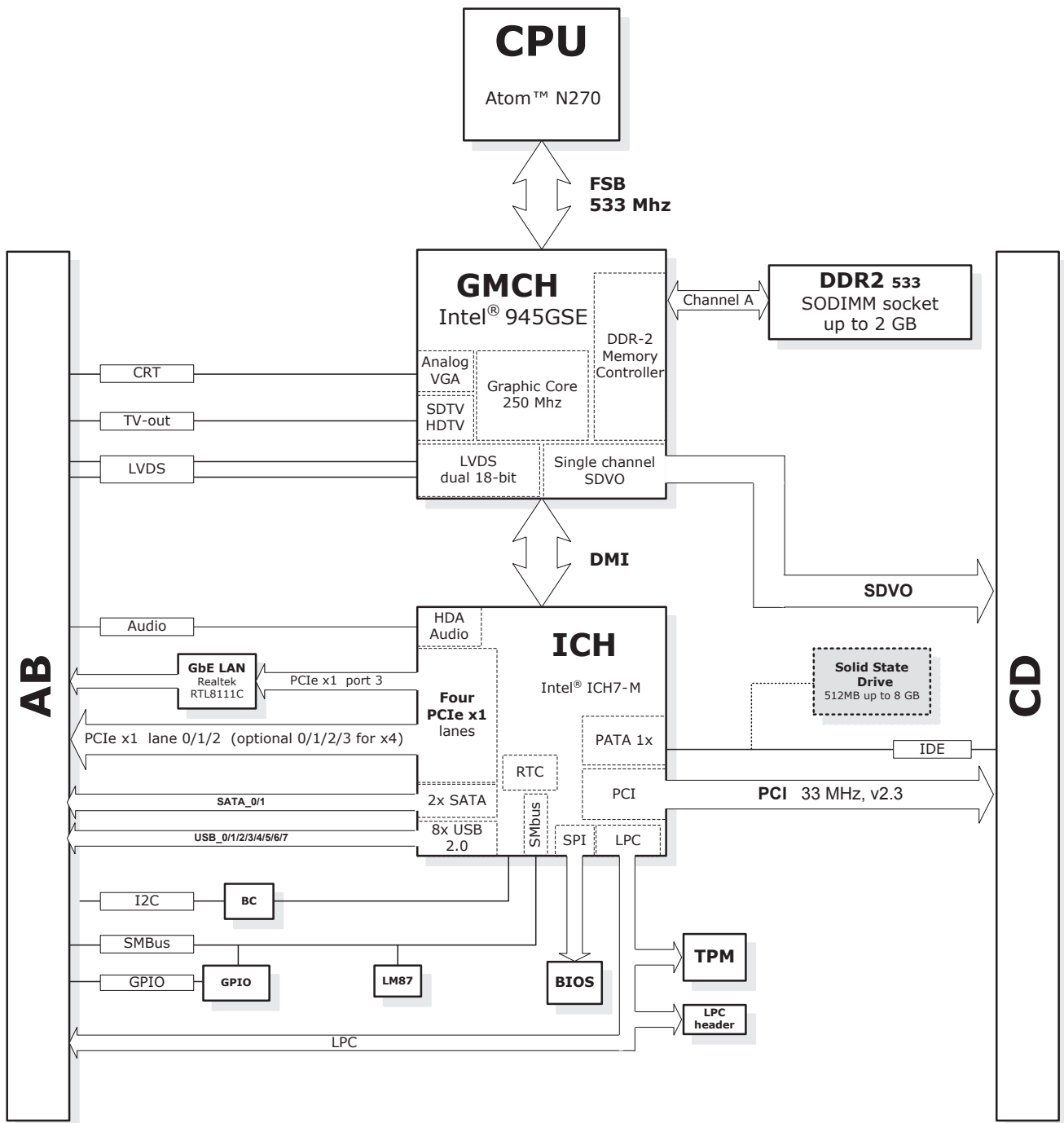
Mechanical and Environmental

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-operation: 1.88 Grms, 5-500 Hz, each axis Operation: 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-bit Windows® Vista 32-bit Linux® 2.6.x
Extended Support	Embedded XP BSP WinCE BSP Linux® 2.6.x BSP AIDI I²C Library for Win32, WinCE and Linux®

Functional Diagram



Ordering Information

Modules

Model Number	Description/Configuration
Express-AT	COM Express™ module with Intel® Atom™ N270 processor at 1.6 GHz

Accessories

Model Number	Description/Configuration
Heat Spreaders	
HTS-CAT-B	Heatspreader for Express-AT (BGA CPU) with threaded standoffs
Passive Heatsinks	
THS-CAT-B	Low Profile Heatsink for Express-AT (BGA CPU) with threaded standoffs

Express-DW400

Server Level COM Express™ Module with
Intel® Core™2 Duo Processor and 3100 Chipset



Features

- Intel® Core™ Duo and Core™2 Duo Processor
- Two PCI Express® x4 or one x8 with EDMA
- Two vertical or one horizontal SO-RDIMM sockets for DDR2 400 with ECC
- Intel® 82573 GbE LAN
- USB 2.0, Serial ATA and IDE support
- PICMG® COM.0 COM Express™ Module Type 2, basic form factor

Specifications

Core System

CPU	Merom Core socket type
	Intel® Core™2 Duo T7400, 2.1GHz, 4MB L2 cache, 34 W Intel® Celeron® M 530, 1.73GHz, 1MB L2 cache, 27 W
	Merom Core BGA type
	Intel® Core™2 Duo L7400, 1.5 GHz, 4MB L2 cache, 17 W Intel® Core™2 Duo U7500, 1.06 GHz, 2MB L2 cache, 10 W
	Yonah Core socket type
	Intel® Core™ Duo T2500, 2.0 GHz, 2MB L2 cache, 31 W Intel® Celeron® M 440, 1.86 GHz, 1MB L2 cache, 27 W
	Yonah Core BGA type
	Intel® Core™ Duo U2500, 1.2 GHz, 2MB L2 cache, 9 W Intel® Celeron M 423, 1.06GHz, 1MB L2 cache, 5.5 W
Memory	Single channel registered ECC DDR2 at 400MHz up to 4 GB Option 1: one horizontal SODIMM socket, max. 2 GB Option 2: two vertical SODIMM sockets, max. 4 GB
Chipset	Intel® 3100 single integrated chip (Memory Controller Hub + I/O Controller Hub)
BIOS	Phoenix® Award
Hardware Monitor	Supply voltages and CPU/system temperature
Watchdog Timer	Two stage watchdog timer
Expansion Busses	Two PCI Express® x4 lanes with EDMA support, configurable as a one x8 PCI Express® x8 lane, and three x1 lanes 32-bit PCI rev 2.3 at 33MHz LPC bus SMBus / I²C

Video

On carrier	Optional VGA support via PCI or PCIe bus on carrier
------------	---

LAN

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

Multi I/O

Chipset	Integrated on Intel® 3100
USB	Up to four USB 2.0 ports, supports legacy keyboard/mouse
SATA	Four Serial ATA 150 ports
PATA IDE	Single channel IDE for CF card support (SATA to IDE conversion)

Super I/O

Connected to LPC bus on carrier if needed

TPM

Chipset	Infineon SLB9635TT1.2
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	24.5 W (with Core™2 Duo U7500 and 2 GB memory typical)

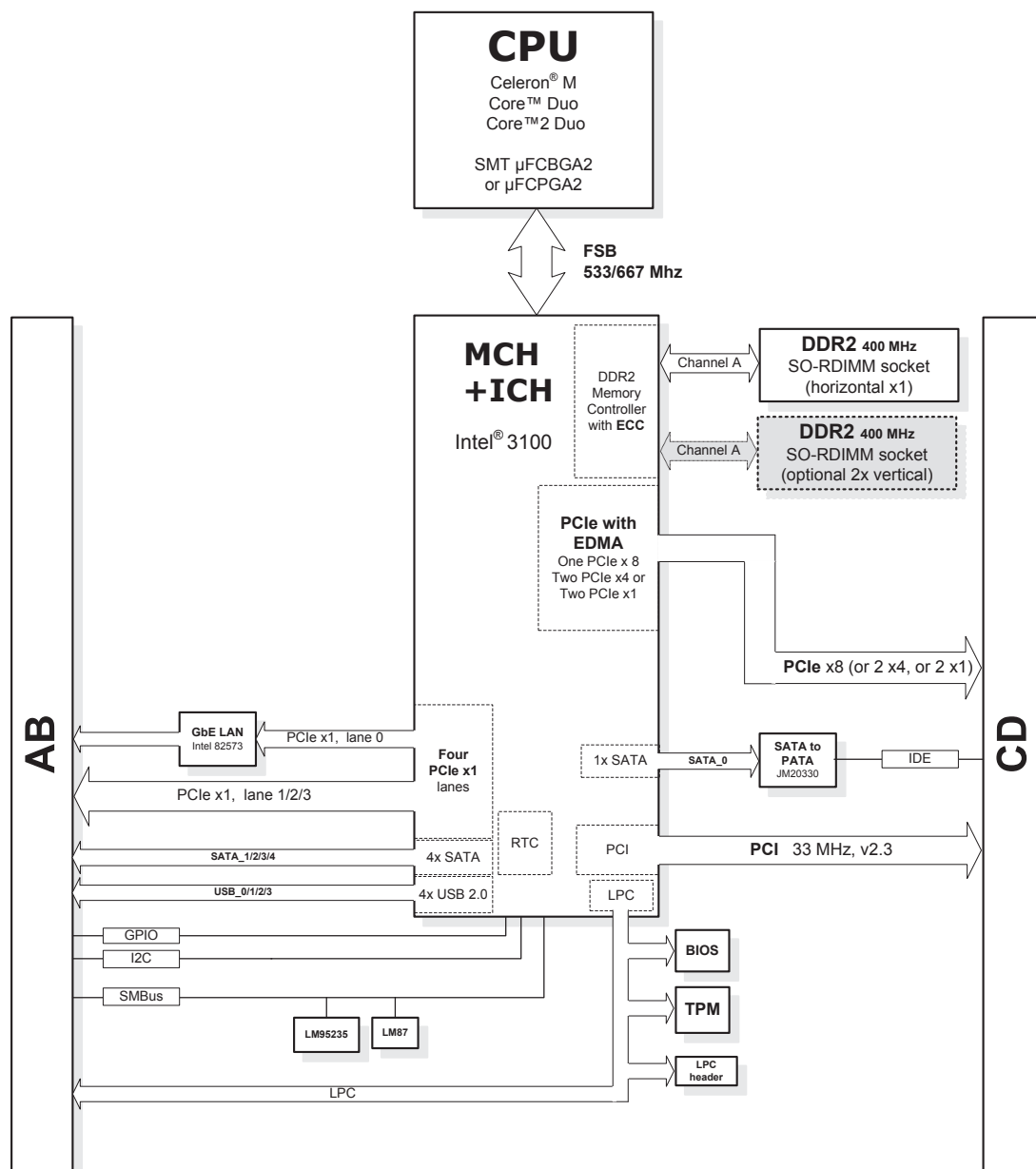
Mechanical and Environmental

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-operation: 1.88 Grms, 5-500 Hz, each axis Operation: 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 Linux® 2.6.26 and up
Extended Support	Embedded XP BSP Linux® 2.6.x BSP AIDI I²C Library for Win32 and Linux®

Functional Diagram



Ordering Information

Modules

Model Number	Description/Configuration
Express-DW400-S	Server level COM Express™ module with socket for CPU
Express-DW400V-S	Server level COM Express™ module with socket for CPU and two vertical SO-RDIMM sockets
Express-DW400-423	Server level COM Express™ module with Intel® Celeron® M 423 at 1.06 GHz
Express-DW400-U2500	Server level COM Express™ module Intel® Core™ Duo U2500 at 1.20 GHz
Express-DW400- U7500	Server level COM Express™ module with Intel® Core™2 Duo U7500 at 1.06 GHz
Express-DW400-L7400	Server level COM Express™ module with Intel® Core™2 Duo L7400 at 1.5 GHz

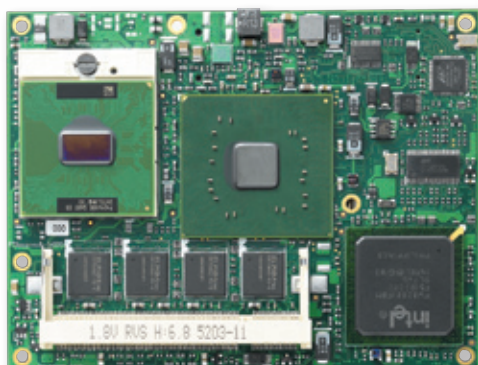
V-type (Vertical): All modules above are with single horizontal SO-RDIMM socket, expect for DW400V type that has two vertical placed SO-RDIMM sockets

Accessories

Model Number	Description/Configuration
Heat Spreaders	
HTS-DW400-B	Heatspreader for Express-DW400 (BGA CPU, horizontal SORDIMM) with threaded standoffs
Heatsink with Active Cooling	
THSF-DW400V-S	High Performance Heatsink with Fan for Express-IW400 and DW400 (socket CPU and dual vertical SODIMMs) with threaded standoffs
THSF-DW400-S	High Performance Heatsink with Fan for Express-IW400 and DW400 (socket CPU and single horizontal SODIMM) with threaded standoffs

Express-IA533

COM Express™ Module with Intel® Pentium® M Processor and 915GME/ICH6-M Chipset



Features

- Intel® Pentium® M Processor up to 2.1 GHz
- Intel® 915GME Express chipset
- Dual-Channel DDR2 533 MHz
- Three PCI Express® x1 lanes and one PCI Express® x16 Graphics lane
- Onboard Gigabit Ethernet
- SATA, USB 2.0, LVDS, SDVO

Specifications

Core System

CPU	Socket 479 type Intel® Pentium® M 760, 2.0 GHz, with 2MB L2 cache Intel® Pentium® M 745, 1.8 GHz, with 2MB L2 cache BGA type Intel® Pentium® M 738, 1.4 GHz, with 2MB L2 cache Intel® Celeron® M 373, 1.0 GHz, with 1MB L2 cache
Memory	400/533 MHz DDR2, non-ECC, unbuffered Channel A: SO-DIMM socket for DDR2 memory, max 1 GB Channel B: soldered DDR2 memory, max 512 MB
Chipset	Intel® 915GME Express Graphic Memory Controller Hub and Intel® I/O Controller Hub 6 Mobile (ICH6-M)
BIOS	Phoenix AWARD BIOS in 1 MB FWH with console redirection and CMOS EEPROM backup
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	Programmable timer ranges to generate RESET
Expansion Busses	Four PCI Express x1 lanes (one occupied by GbE LAN) Six 32-bit PCI 2.3 Masters at 33/66 MHz Low Pin Count (LPC) interface for Super I/O on carrier SMBus 2.0 interface support

Video

Chipset	915GME GMCH integrated chipset supports dual independent displays
CRT Interface	Analog CRT support up to 2048 x1536
LVDS Interface	Dual channel 18-bit
Graphic Expansion busses	One PCI Express® x16 Graphics port Two Serial DVO ports (multiplexed with PCI Express® x16)

Audio

Chipset	Integrated on Intel® ICH6-M
Audio Codec	Optional AC'97 codec on carrier

LAN

Chipset	Yukon-EC 88E8053 PCIe Gigabit Ethernet Controller
Interface	Triple speed 10/100/1000BASE-T IEEE 802.3 compliant with fully integrated ASF 2.0 functionality

Multi I/O

Chipset	Intel® ICH6-M
IDE (PATA)	One Ultra ATA 100/66/33 IDE port
SATA	Two SATA-150 ports
USB	Up to eight USB 2.0 ports, supports legacy KB / Mouse

Super I/O

Connected to LPC bus on carrier if needed

TPM

Chipset	Infineon SLB9635TT1.2
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	18 W typical (with Pentium® M 738 and 1 GB memory)

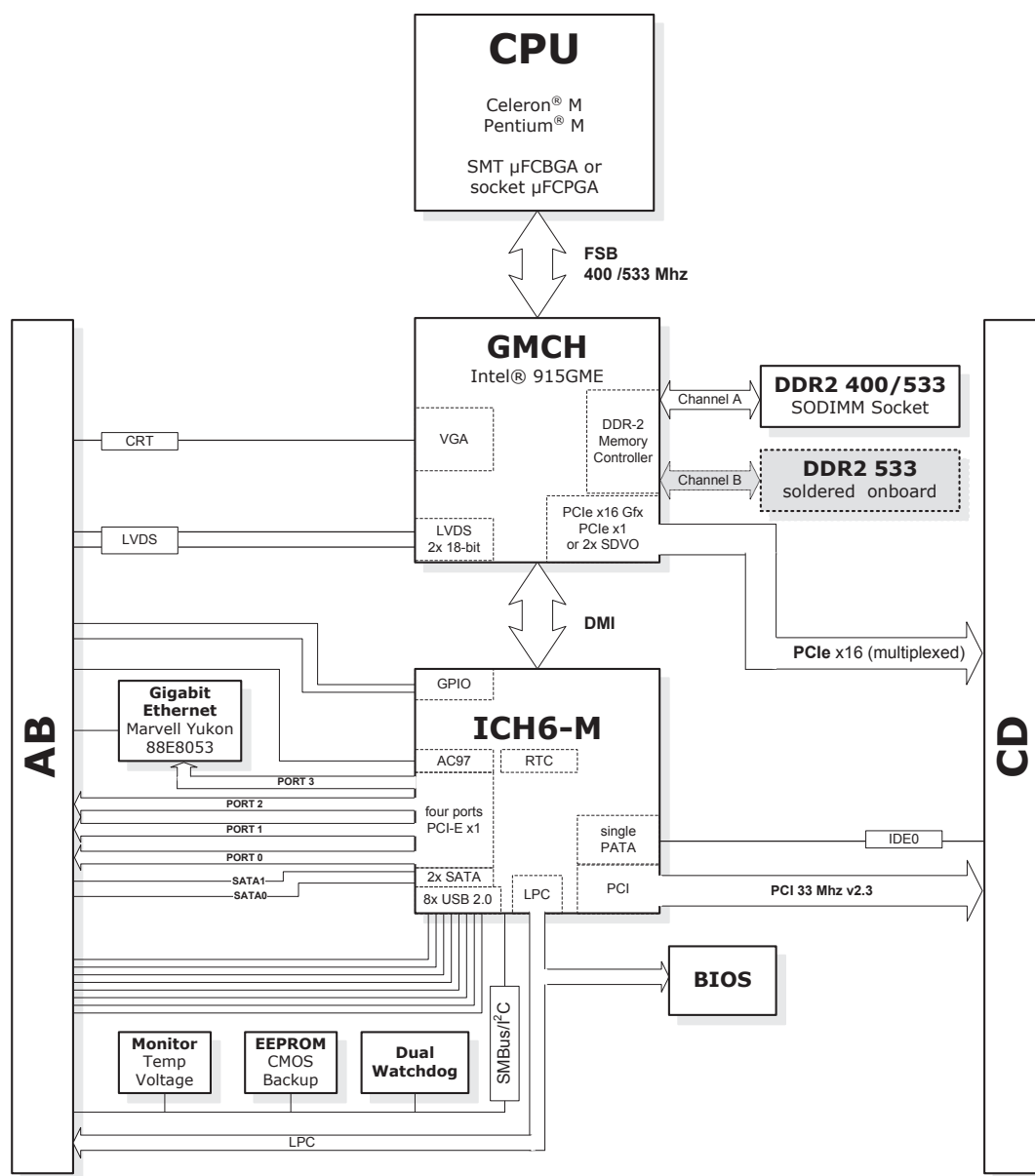
Mechanical and Environmental

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-operation: 1.88 Grms, 5-500 Hz, each axis Operation: 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-bit Linux® 2.6.x
Extended Support	Embedded XP BSP Linux® 2.6.x BSP AIDI I²C Library for Win32 and Linux®

Functional Diagram



Ordering Information

Modules

Model Number	Description/Configuration
Express-IA533-S/0	COM Express module with socket for Intel® Celeron®/Pentium® M processor
Express-IA533-760/0	COM Express module with Intel Pentium® M 760 at 2.0GHz
Express-IA533-745/0	COM Express module with Intel Pentium® M 745 at 1.8GHz
Express-IA533-738/0	COM Express module with Intel Pentium® M 738 at 1.4GHz
Express-IA533-373/0	COM Express module with Intel Celeron® M 373 at 1GHz

Note: All models optional soldered memory

Accessories

Model Number	Description/Configuration
Heat Spreaders	
HTS-IA533-B	Heatspreader for Express-IA533 (BGA CPU) with threaded standoffs
Passive Heatsinks	
THS-IA533-B	Low Profile Heatsink for Express-IA533 (BGA CPU) with threaded standoffs
Heatsink with Active Cooling	
THSF-IA533-S	High Performance Heatsink with Fan for Express-IA533 (socket CPU) with threaded standoffs



Features

- Intel® Atom™ processor N270 at 1.6 GHz
- Intel® 945GSE/ICH7-M chipset
- SODIMM for up to 2 GB DDR2 at 533 MHz
- Three PCIe x1 (optional 4 x1 or 1 x4)
- High resolution CRT, single/dual 18-bit LVDS and TV-out (SDTV and HDTV)
- SATA, IDE (PATA), Gigabit LAN, USB 2.0
- Optional 1GB ~ 8GB IDE-based Solid State Drive

Specifications

Core System

CPU	BGA type Intel® Atom™ N270, FSB 533, 1.6 GHz with 512 KB L2 cache, 2.5 W, on-die primary 32-kB instruction cache and 24 KB write-back data cache Hyper-Threading support (2-threads) Advanced gunning transceiver logic (AGTL+) bus driver technology Enhanced Intel SpeedStep® Technology Source synchronous double-pumped (2x) Address Source synchronous quad-pumped (4x) Data C0 - C4 low power states supported
Memory	Single SODIMM socket memory, for max 2 GB of non-ECC, 400/533 MHz DDR2
Chipset	Intel® 945GSE Express Graphic Memory Controller Hub and Intel® I/O Controller Hub 7 Mobile (ICH7-M)
BIOS	AMIBIOS®8 with CMOS backup in 8 Mbit SPI BIOS
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	Programmable timer ranges to generate RESET
Expansion Busses	4 PCI Express x1 (0/1/2 are free, 3 is occupied by GbE LAN) optionally configured as one PCIe x4 Serial Digital Video Out (SDVO) 32-bit PCI 2.3 at 33MHz, supporting 4 bus masters LPC, SMBus, I²C

Video

Chipset	Intel® Graphics Media Accelerator 950 integrated into 945GSE GMCH supporting dual independent displays
CRT Interface	Analog CRT support up to 1600 x 1200
LVDS Interface	Single / Dual channel 18-bit (optional 24-bit on carrier through SDVO)
TV-out	NTSC/PAL up to 1024x768 resolution supported, HDTV 480p/720p/1080i/1080p modes supported (without Macrovision)

Audio

Chipset	Integrated on Intel® I/O Controller Hub 7 Mobile (ICH7-M)
Audio Codec	HDA (Azalia) or AC97 codec on carrier

LAN

Chipset	PCIe x1 Realtek RTL8111C
Interface	10/100/1000 Mbps

Multi I/O

Chipset	Intel® ICH7-M
IDE (PATA)	Single IDE channel with UDMA100 with optional 1GB ~ 8GB IDE-based Solid State Drive
SATA	Two ports SATA-150
USB	Up to eight ports USB 2.0

Super I/O

Connected to LPC bus on carrier if needed

TPM

Chipset	Infineon SLB9635TT1.2
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	9 W typical (with Atom™ N270 and 1 GB memory)

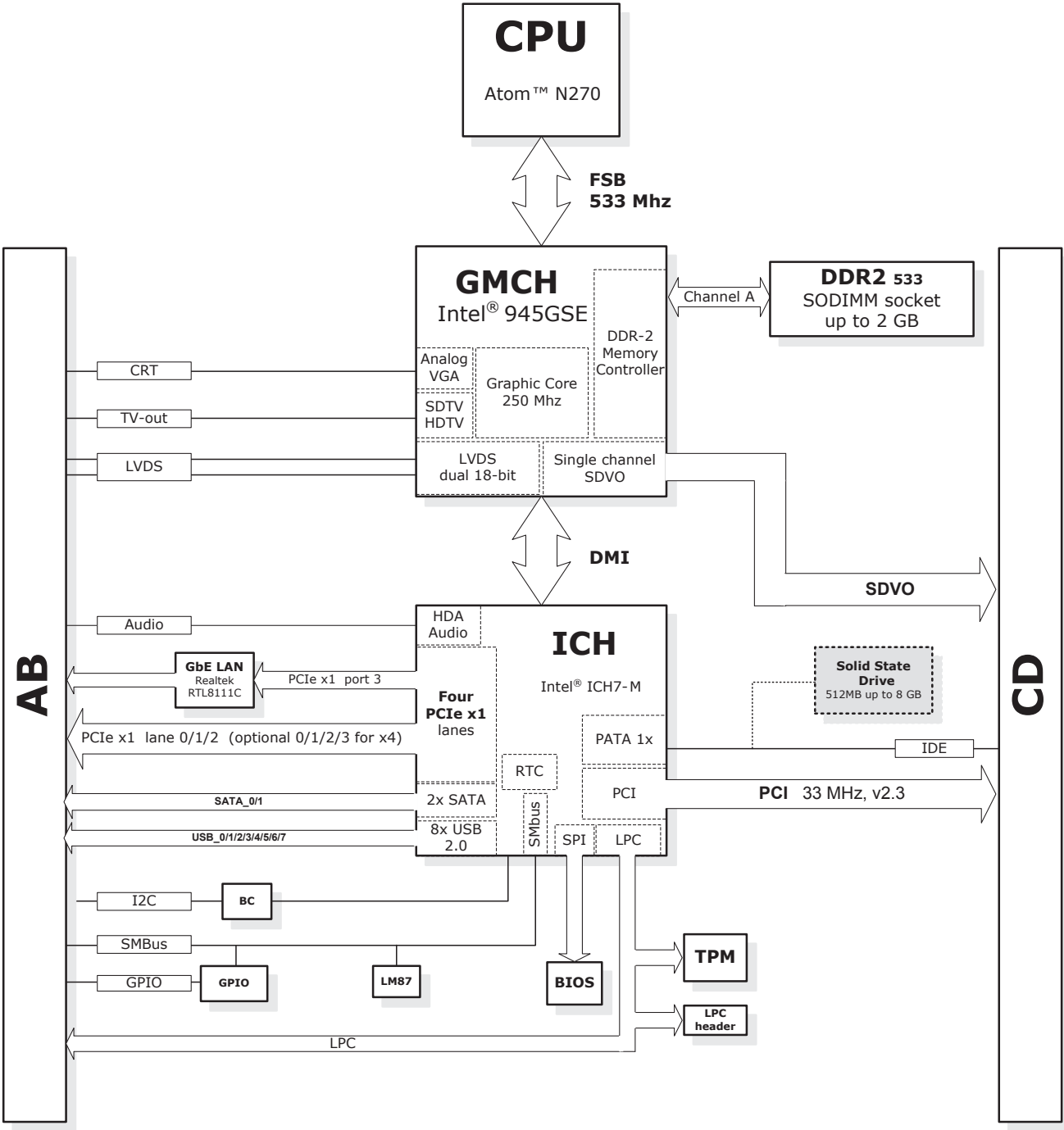
Mechanical and Environmental

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-operation: 1.88 Grms, 5-500 Hz, each axis Operation: 0.5 Grms, 5-500 Hz, each axis
Form Factor	COM Express™ Type 2, compact form factor, 95 mm x 95 mm
Certifications	CE, FCC

Operating Systems

Standard Support	Windows® XP 32-bit Windows® Vista 32-bit Linux® 2.6.x
Extended Support	Embedded XP BSP WinCE BSP Linux® 2.6.x BSP AIDI I²C Library for Win32, WinCE and Linux®

Functional Diagram



Ordering Information

Modules

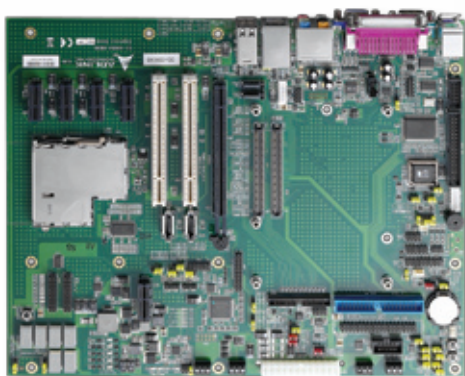
Model Number	Description/Configuration
Express-ATC-N270	Compact COM Express™ module with Intel® Atom™ N270 processor at 1.6 GHz

Accessories

Model Number	Description/Configuration
Heat Spreaders	
HTS-ATC-B	Heatspreader for Express-ATC (BGA CPU) with threaded standoffs
Passive Heatsinks	
THS-ATC-B	Low Profile Heatsink for Express-ATC (BGA CPU) with threaded standoffs

Express-BASE

COM Express™ Reference Carrier Board with ATX Form Factor



Features

- Five PCI Express® x1 slots
- PCI Express x16 Graphic slot / SDVO slot
- Two Legacy 32-bit PCI slots
- Dual LPC BIOS, single step execution
- LPC Super I/O (enable/disable)
- CF Card or Express Card
- Integrated POST Code
- ATX / AT or Battery Powered

Specifications

Form Factor

Core Module Interface	PICMG® COM Express™ Revision 1.0
Dimensions	Supports Type 1 and Type 2 Basic Form Factor Modules
Expansion Busses	305 mm x 240 mm (AT/ATX)
	One 32-bit PCI™ v2.3 slot
	Five PCI Express® x1 slots
	One PCIe x16 slot / SDVO slot
	LPC bus header

BIOS / Debug

POST LEDs	Onboard diagnostics for BIOS POST code data and address on LPC bus
	Allows single step BIOS execution
Secondary BIOS	Onboard socket for secondary LPC BIOS on carrier

Active Components

Audio	ALC880 High Definition Audio Codec
Super I/O	Winbond WF83627HG on LPC

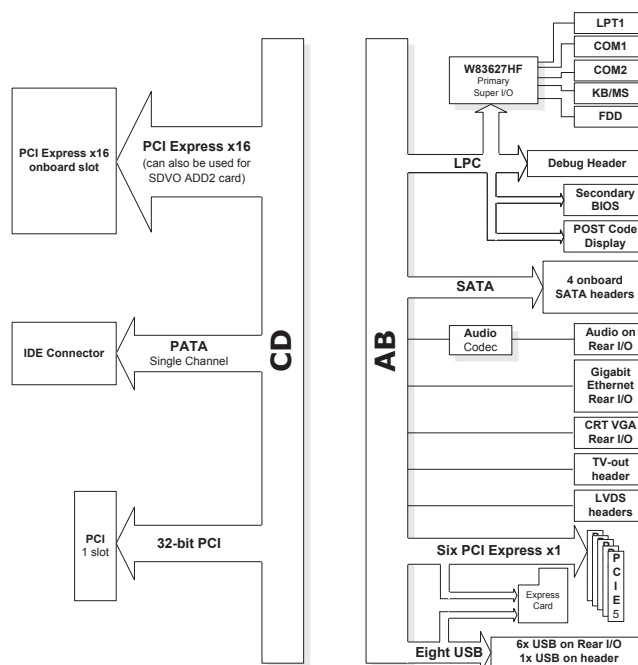
Connectors

COM Express™	Two x 220-pin (Type 2)
CRT	DB15 on Rear I/O panel for VGA/CRT displays
LVDS	Two onboard headers supporting dual channel LVDS
TV-out	8-pin header (extension cable included)
Audio	Mic/Line-in/Speakers on rear I/O panel, Mic/Line-in on header, S/PDIF on header
PATA IDE	One 40-pin header
SATA IDE	Four SATA connectors
PCIe Mini Card	One socket onboard
LAN	10/100/1000BaseT compatible RJ45 on rear I/O panel
USB 2.0	Four + two on rear I/O panel, two on header and one through Mini Express Card
Serial Port	One DB-9 on rear I/O panel, one header onboard
Parallel Port	One DB-25 on rear I/O panel
FDD	34-pin header
KB/Mouse	Two 6-pin mini DIN (on rear I/O panel)
Digital I/O	8-pin header

Power and Operation

Connectors	Standard ATX or 12 V terminals
Switches	Onboard RESET button and ATX mini switch

Functional Diagram



Ordering Information

Carrier

Model Number	Description/Configuration
Express-BASE	COM Express™ Reference Carrier Board in ATX Formfactor



Ask for availability

Starter Kit - COM Express

This Computer-on-Module Starter Kit gets you going with Carrier Board Design and Software Verification in no time



Features

- COM Express™ module of choice
- CPU, Memory of choice
- Express-BASE Reference Carrier Board
- Thermal Solution (heatspreader and heatsink)
- Schematics, Designs Guide, and User Manuals
- ADLINK USB stick with Documentation, Drivers, BSPs, Libraries

The Starter Kit consists of a COM Express™ core module with ATX size reference carrier board that offers one PCI Express graphics slot x16, four PCI Express x1 slot, PCI slot, serial ATA, SDVO, CRT, LVDS, TV-out, USB 2.0, Gigabit LAN, and Super I/O. All necessary cables are included.

Contents

Standard Items

- Express-Base evaluation carrier board
- Accessory kit:
 - IDE cable
 - SATA cable
 - TV out cable
 - CF adapter
 - PCI 2-slot riser card
 - USB Memory Stick with documentations, drivers, libraries, and BSP for Linux, WinCE, Embedded XP
 - Baseboard design guide and product manual

Optional Items

- COM Express™ module of choice
- Socket type CPU of choice
- Memory of choice
- Thermal solution of choice (heatspreader, heatsink)

Ordering Information

ADLINK provides a “tailor made” Starter Kit service. We let you choose your preferred module, CPU type and memory to suit your application development needs.

Select a core module, memory, thermal solution, and CPU (for socket type) according to your needs



Contact an ADLINK sales representative in your region



Get the specific part number for your starter kit



Features

- Intel® Atom™ processor Z530/Z510
- Intel® System Controller Hub US15W
- One PCIe x1 (opt. 2 without LAN)
- 18/24-bit LVDS and SDVO
- GbE LAN, SATA, USB 2.0, SDIO, LPC
- AMIBIOS®8 BIOS with TPM 1.2 support
- Solid State Disk : 1 GB up to 8 GB
- Ultra Compact 84 x 55 mm footprint

Specifications

Core System

CPU	Intel® Atom™ processor Z530 at 1.6 GHz with 533 MHz FSB, 2.3 watts TDP, supports Hyper-Threading Intel® Atom™ processor Z510 at 1.1 GHz with 400 MHz FSB, and 2.0 watts TDP
Memory	Soldered 512 MB or 1 GB of non-ECC, unbuffered 400/533 MHz DDR2
Chipset	Intel® System Controller Hub US15W
BIOS	AMIBIOS®8 with CMOS backup in 8 Mbit LPC Flash
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	Programmable timer ranges to generate RESET
Expansion Busses	Two PCI Express x1 LPC bus SMBus / I²C

Video

Chipset	GMA 500 integrated on Intel® on System Controller Hub US15W
Features	Ultra low power integrated 3D graphics core with full HD HW video decode engine and dual independent display support
CRT Interface	Analog VGA not supported
LVDS Interface	Single channel 18/24-bit at 25~112 MHz
SDVO	May be used for any external display device (HDMI/DVI, analog TV, VGA/CRT and LVDS); includes EDID and EDID-less support, and a 160 MHz pixel clock

Audio

Chipset	Integrated on Intel® System Controller Hub US15W
Type	Supports Intel® High Definition Audio codec on carrier board

LAN

Chipset	Realtek RTL8111C PCI Express Gigabit Ethernet Controller
Interface	10/100/1000 Mbps with Wake-on-LAN and Alert on LAN support

Multi I/O

IDE (PATA)	Single channel IDE with UDMA (33/66/100) connects to onboard Solid State Disk of 1 GB up to 8 GB
SATA	PATA to SATA bridge One SATA port
USB	Eight USB v2.0 ports capable of transfers up to 480 MB/s; one port optionally configurable as USB client

TPM

Chipset	Infineon SLB9635TT1.2
Type	TPM 1.2

Power Specifications

Input Power	4.75V ~ 14V wide range input support, with optional 5Vsb for ATX support
Power States	Supports S0, S1, S3, S4, S5
Power Consumption	5 W (with Atom Z510 and 512 MB memory typical)

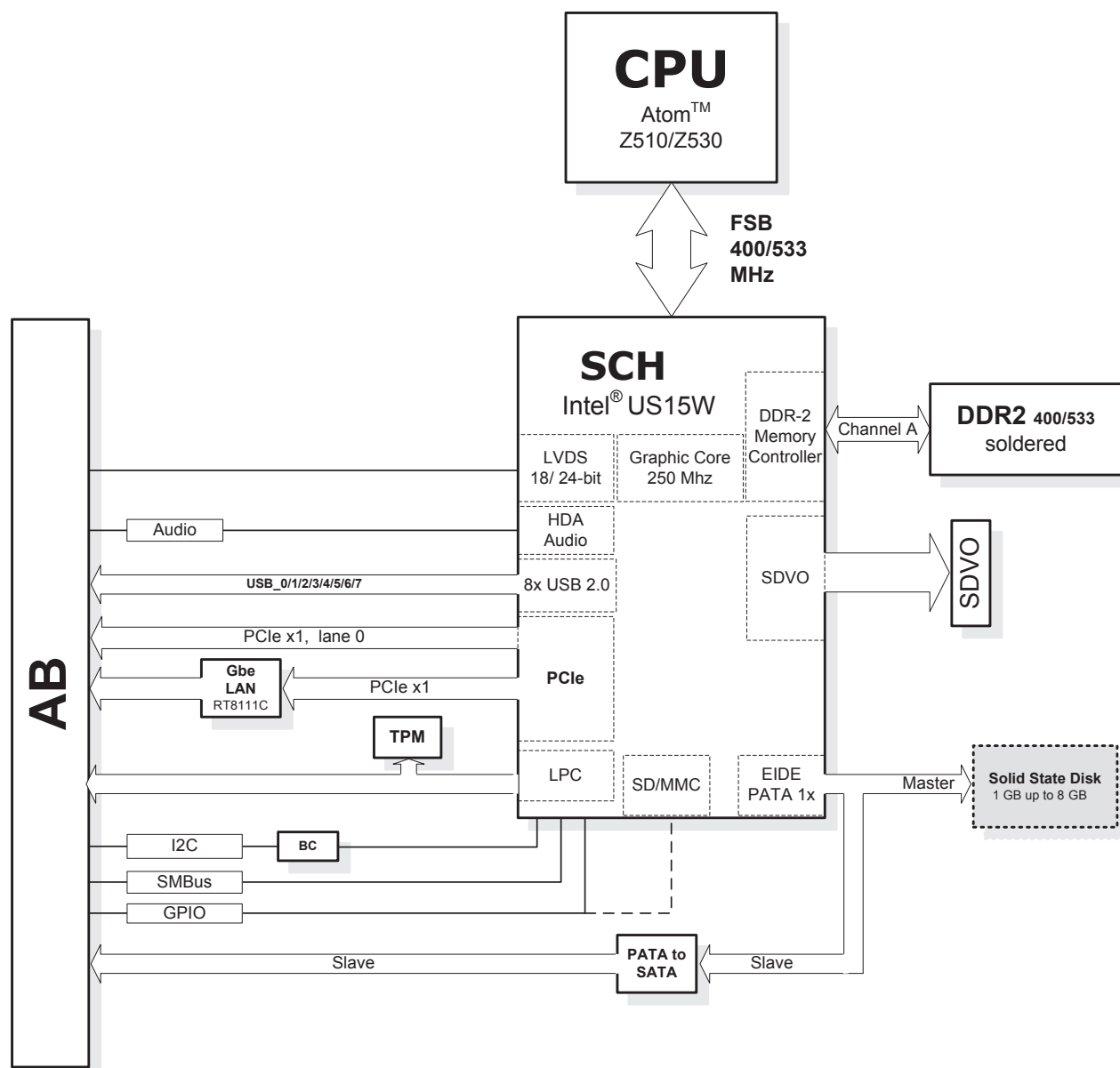
Mechanical and Environmental

Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Humidity	10% to 90%, storage: 5% to 95% (non condensing)
Shock	15G peak-to-peak, 11ms duration, non-operation
Vibration	Non-operation: 1.88 Grms, 5-500 Hz, each axis Operation: 0.5 Grms, 5-500 Hz, each axis
Form Factor	COM Express™ Type 1 compatible pinout "Ultra" size : 84 mm x 55 mm
Certifications	CE, FCC

Operating Systems

Standard Support	Windows® XP 32-bit Windows® Vista 32-bit Linux® 2.6.26 and up
Extended Support	Embedded XP BSP WinCE BSP Linux® 2.6.x BSP AIDI I²C Library for Win32, WinCE and Linux®

Functional Diagram



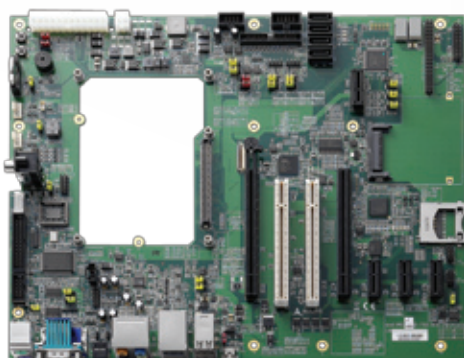
Ordering Information

Modules

Model Number	Description
nanoX-ML-51/512-0	Ultra COM Express™ Type 1 compatible module with Intel® Atom™ processor Z510 at 1.1 GHz and 512 MB DDR2
nanoX-ML-53/512-0	Ultra COM Express™ Type 1 compatible module with Intel® Atom™ processor Z530 at 1.6 GHz and 512 MB DDR2

Accessories

Model Number	Description
Heat Spreaders	
HTS-nML-B	Heatspreader for nanoX-ML (BGA CPU) with threaded standoffs
THS-nML-B	Low profile Heatsink for nanoX-ML (BGA CPU) with threaded standoffs



Features

- Six PCI Express® x1 (5 slots, 1 PCIe Mini Card slot)
- PCIe to PCI bridge, two PCI™ slots
- SDVO ADD2 card slot
- LPC based Super I/O (enable/disable)
- SDIO/MMC support, multiplexed on GPIO
- Dual BIOS (both LPC and SPI)
- Compatible with PICMG® COM Express™ Carrier Design Guide

Specifications

Form Factor

Core Module Interface	PICMG® COM Express™ Revision 1.0 Supports Type 1 and Type 2, basic and "Ultra" form factor modules
Dimensions	305 mm x 240 mm (AT/ATX)
Expansion Busses	Five PCI Express® x1 slots Two 32-bit PCI™ v2.3 slot One PCI Express® Mini Card slot One SDVO ADD2 slot LPC bus header

BIOS / Debug

POST LED	Onboard diagnostics for BIOS POST code data and address on LPC bus Allows single step BIOS execution
Secondary BIOS	Sockets for secondary LPC BIOS or secondary SPI BIOS on carrier

Active Components

PCI Express Switch	PLX PEX8505 switch with PCIE0 input from module
PCI Express to PCI bridge	PLX PEX8112 bridge with PCIe x1 input from PEX8505 switch
Super I/O	Winbond WF83627DHG on LPC bus
Audio Codec	Realtek ALC888 High Definition Audio Codec
Digital I/O	I²C to GPIO bridge PCA9535

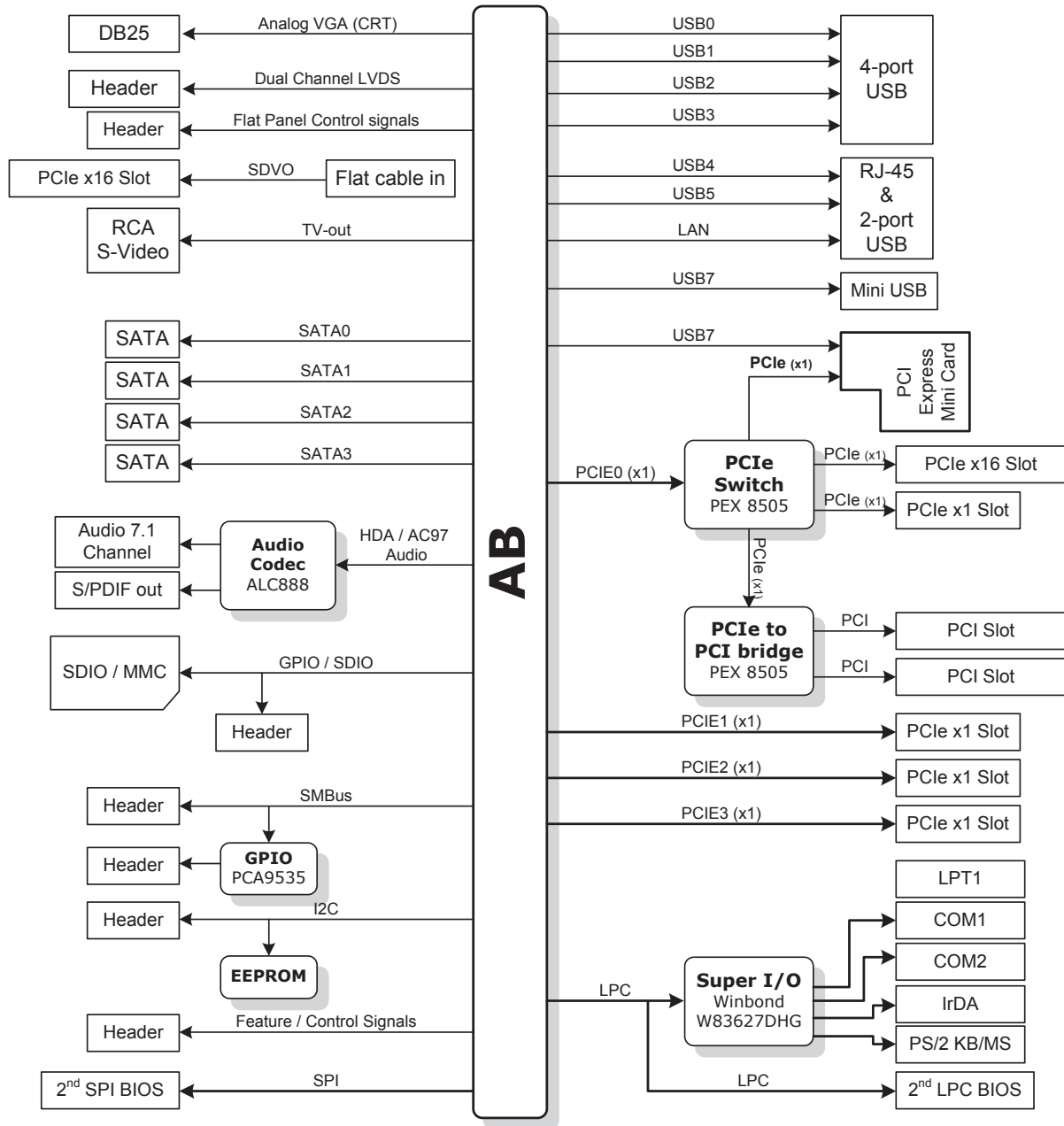
Connectors

COM Express™	Connector AB only, one x 220-pin (Type 1)
CRT	DB15 on I/O panel for VGA/CRT displays
LVDS	Onboard 34-pin header
TV-out	RCA and S-Video connector
Audio	Mic/Line-in/Line-out and S/PDIF on I/O panel
SATA	4 SATA connectors
PCIe Mini Card	One socket onboard (USB + PCIe x1)
LAN	10/100/1000Base-T compatible RJ45 on I/O panel
USB 2.0	Six on I/O panel, two on header and one through Mini Express Card
Serial Port	One DB-9 on I/O panel, one header onboard
Parallel Port	One header onboard
KB/Mouse	Two 6-pin mini DIN (on rear I/O panel)
SDIO/MMC	SD socket for bootable storage or function extension
Feature Connectors	SMBus, I²C, module control signals, flat panel control signals
Miscellaneous Pin Header	Reset, Power LED, HDD LED, Buzzer

Power and Operation

Connectors	Standard ATX or 12 V terminals
Switches	Onboard RESET button and ATX mini switch

Functional Diagram



Ordering Information

Carrier

Model Number	Description
nanoX-BASE	COM Express™ Type 1 Reference Carrier Board with onboard PCIe to PCI bridge



Computer-On-Modules

ETX® (Embedded Technology eXtended) is a PCI™/ISA based Computer-on-Modules that offers complete PC functionality within a 95 mm x 114 mm footprint

Best for customization

The ETX® module includes most generic functions needed for almost any application, such as graphics, Ethernet, sound, IDE, FDD, keyboard/mouse, parallel, serial, and USB ports. ETX® modules are available in different performance levels with CPU speeds ranging from 300 MHz to 2.0 GHz.

A custom designed carrier board complements the ETX® core module with additional functionality that is required for a specific application. The carrier board provides the interface to connect the module to peripherals such as hard disk, mouse, and display. Connectors on the carrier board can be placed exactly where needed to optimize the final package and minimize cabling. This results in a more reliable product and simplifies system integration. A single carrier board can be used with different ETX® modules when the same functionality is required at different performance levels, allowing great ease in end product diversification.

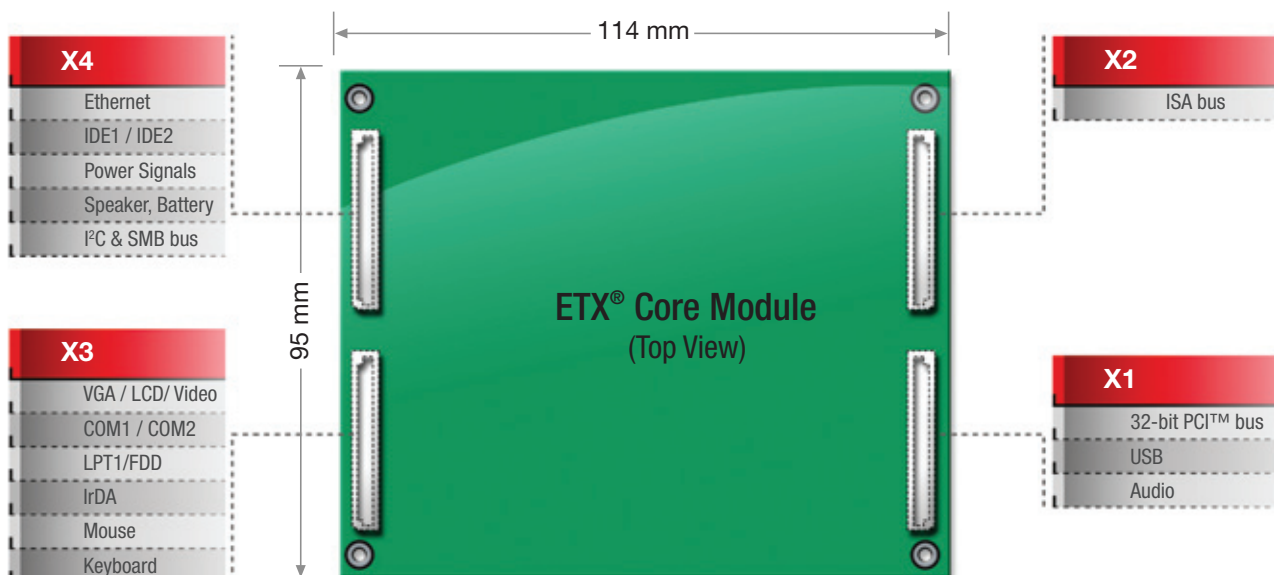
Software Support

To ensure software development does not lag behind hardware development, we provide a full set of BSPs to get you up and running in no time. BSPs for the following operating systems are provided :

- Embedded Linux® Development Kit
- Linux® BSP
- Windows® CE .Net BSP
- VxWorks® BSP
- Windows® XP Embedded support

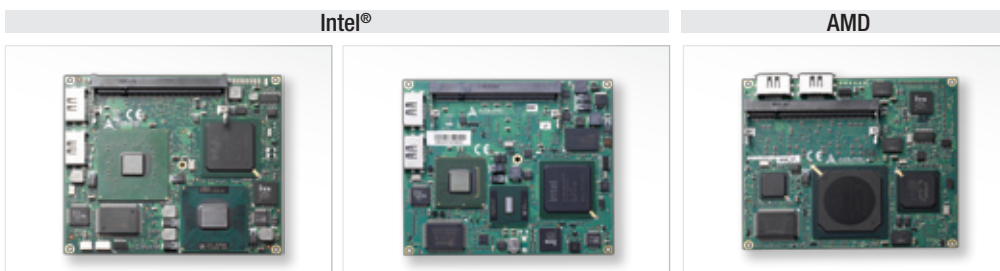
Fastest Time to Market

The ETX® approach of custom carrier boards combined with off-the-shelf Computers-on-Modules is an excellent solution when you need to customize, but lack the time or quantity for a complete design from the ground up. The average time to design a carrier board is less than half of that for a full custom OEM board. ETX® is economically feasible for system integration projects with production volumes in the range of 500 to 10,000 pcs per year. The ETX® concept is well accepted and has numerous advantages over full custom designs. It reduces engineering complexity, lowers the threshold for total project quantity, and last but not least, brings your product to the market in no time.



Selection Guide

ETX®



	ETX-NR667	ETX-AT	ETX-GLX
CPU Type	Intel® Core™2 Duo (Merom/Yonah) up to 2.2 GHz with 4MB L2 cache	Intel® Atom™ up to 1.6 GHz with 512 KB L2 cache	AMD Geode™ LX800
CPU Package	µFC-BGA	µFC-BGA	BGU
CPU Speeds / Numbers	Celeron® M 423, 440 Core™2 Duo L7400, U7500, L2400	Intel® Atom™ N270 at 1.6 GHz	LX800 @ 500 MHz
FSB Speed	667/533	533	-
Main Chipset	Intel® 945GME with ICH7M	Intel® 945GSE with ICH7M	Geode™ CS5536 companion device
System Memory	2 GB (max)	2 GB (max)	1 GB (max)
Memory Type	DDR2 667/533 MHz	DDR2 533 MHz	DDR 333 /400 MHz
Soldered Memory	-	-	128/256 MB
Socket Memory	Max 2 GB on one 200-pin SODIMM	Max 2 GB on one 200-pin SODIMM	Max 1 GB on one 200-pin SODIMM
Cache (L2)	L2 depends on processor type 1MB, 2MB or 4MB	L2 cache 512 KB	128 KB
BIOS Type	AMIBIOS®8, American Megatrend	AMIBIOS®8, American Megatrend	Phoenix® Award
BIOS Features	Serial Console redirection EEPROM CMOS backup, USB boot/legacy, PXE support	Serial Console redirection EEPROM CMOS backup, USB boot/legacy, PXE support	Serial Console redirection EEPROM CMOS backup, USB boot/legacy, PXE support
BIOS Flash	8 Mbit Flash SPI	8 Mbit Flash SPI	FWH, 4 Mbit Flash
Graphics Controller	Intel® GMA 950	Intel® GMA 950	Geode GPU (intr. in LX800)
Graphics Memory	max 256 MB UMA	max 256 MB UMA	max 254 MB UMA
Integrated Display Support	CRT (QXGA) single/dual 18/24-bit LVDS (UXGA) TV-out (PAL/NTSC/HDTV)	CRT (QXGA) single/dual 18/24-bit LVDS (UXGA) TV-out (PAL/NTSC/HDTV)	CRT (WUXGA) single/dual 18/24-bit LVDS (UXGA) TV-out Focus (optional)
Compatibility	OpenGL 1.4, DirectX® 9.0c	OpenGL 1.4, DirectX® 9.0c	
Parallel ATA (IDE)	two channels, four devices	two channels, four devices	two channels, four devices
Serial ATA	two SATA 150 ports on module	two SATA 150 ports on module	two SATA 150 ports on module
Matrix Storage Support	optional (ICH7-M DH)	-	-
Super I/O	FDD/LPT shared, 2 Serial, PS2 KB/MS	FDD/LPT shared, 2 Serial, PS2 KB/MS	FDD/LPT shared, 2 Serial, PS2 KB/MS
Ethernet	integrated Intel® Ethernet (10/100)	Realtek RTL8111C GbE (10/100)	Intel® 82551QM Ethernet (10/100)
USB	4 ports USB v2.0	4 ports USB v2.0	4 ports USB v2.0
Audio	ALC262 HDA Codec	ALC262 HDA Codec	ALC655 AC'97 Codec
Watchdog	Yes	Yes	Yes
TPM	Yes	Yes	-
PCI Suport	4x PCI rev. 2.3, 32-bit, 33MHz	4x PCI rev. 2.3, 32-bit, 33MHz	2x PCI rev. 2.2, 32-bit, 33MHz
ISA Support	ITE8888 PCI/ISA bridge	ITE8888 PCI/ISA bridge	ITE8888 PCI/ISA bridge
Management Bus	I²C, Smbus	I²C, Smbus	I²C, Smbus
Power	5V only (AT), 5V and 5Vsb (ATX)	5V only (AT), 5V and 5Vsb (ATX)	5V only (AT), 5V and 5Vsb (ATX)
Power States	S0 S1 S3 S4 S5	S0 S1 S3 S4 S5	S0 S1 S4 S5
Power Consumption	16 W with Core™2 Duo U7500 at 1.06 GHz and 1 GB memory typical	9 Watts typical with Atom™ N270 at 1.6GHz and 1 GB DDR2 typical	7 Watts typical with LX800 and 512MB DDR 333 typical
Operating Temperature	0 ~ +60° Celsius	0 ~ +60° Celsius	0 ~ +60° Celsius
Extended Temperature	selected modules: -20 ~ +70°C	-	-
Compatibility	ETX® Rev 3.0 (SATA on module) **	ETX® Rev 3.0 (SATA on module) **	ETX® Rev 3.0 (SATA on module) **
Dimensions	95 x 114 mm	95 x 114 mm	95 x 114 mm
Solid State Disk on module	-	-	-
BSP & Software Support	Windows® XP/XPe, Windows® Vista Windows® CE, Linux® 2.6.x, AID!	Windows® XP/XPe, Windows® Vista Windows® CE, Linux® 2.6.x, AID!	Windows® XP/XPe / 2K / NT40 / WinCE Linux® 2.6.x, AID!
Page Number	9-33	9-35	9-37

** Note : ETX-3.0 and ETX 2.7 are 100% pin compatible on the board to board connectors (X1~X4), the ETX 3.0 revision only adds SATA as connector on top of the module



Features

- Intel® Core™ Duo/Core™2 Duo processor
- Intel® 945GME/ICH7-M chipset
- Maximum 2 GB DDR2 667 MHz SDRAM
- Single, dual 18/24-bit LVDS, TV out
- SATA, PATA, LAN, USB 2.0, and ISA

Specifications

Core System

CPU (BGA type)

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 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

Single SODIMM socket memory, max 2 GB of non-ECC, 533/667 MHz DDR2

Chipset

Intel® 945GME Express Graphic Memory Controller Hub
Intel® I/O Controller Hub 7 Mobile (ICH7-M)

BIOS

AMIBIOS®8 with CMOS backup

Hardware Monitor

Supply voltages and CPU temperature

Watchdog Timer

Programmable timer ranges to generate RESET

Expansion Busses

32-bit PCI 2.3 Masters at 33 MHz

ISA 16-bit

SMBus/I²C

Video

Chipset

945GME GMCH integrated chipset supports dual independent displays

CRT Interface

Analog VGA support up to 2048 x1536 resolution

LVDS Interface

Dual channel 18/24-bit with Chronitel 7308B on SDVO

TV-out

NTSC/PAL up to 1024x768 resolution, HDTV 480p/720p/1080i/1080p modes supported (without Macrovision)

Audio

Chipset

Integrated on Intel® ICH7-M

Audio Codec

Realtek ALC 268 HDA compatible

LAN

Chipset

ICH7-M integrated MAC with Intel® 82562 PHY

Interface

10/100 Mbps with Wake-on-LAN and Alert on LAN support

Multi I/O

IDE (PATA)

Dual channel IDE with UDMA 33 support

SATA

Two SATA ports on module

USB

Up to four ports USB 2.0

Serial

Two high speed RS-232C ports (COM1/COM2)

IrDA

Supports SIR IrDA 1.1 compliant

Parallel

SPP, EPP, and ECP mode (pin out shared with FDD)

FDD

One drive (pin out shared with LPT)

Keyboard & Mouse

One PS/2 keyboard and one PS/2 mouse

Power Specifications

Input Power

AT mode (5 V only) and ATX mode (5 V and 5 Vsb)

Power States

Supports S0, S1, S3, S4, S5

Power Consumption

18 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

5% to 95% relative humidity, non condensing

Shock

15G peak-to-peak, 11ms duration, non-operation

Vibration

Non-operation: 1.88 Grms, 5-500 Hz, each axis

Operation: 0.5 Grms, 5-500 Hz, each axis

Form Factor

ETX® rev. 3.02, size 95 mm x 114 mm

Certifications

CE, FCC

Operating Systems

Standard Support

Windows® Vista 32/64-bit

Windows® XP 32/64-bit

Linux® 2.6.x

Extended Support

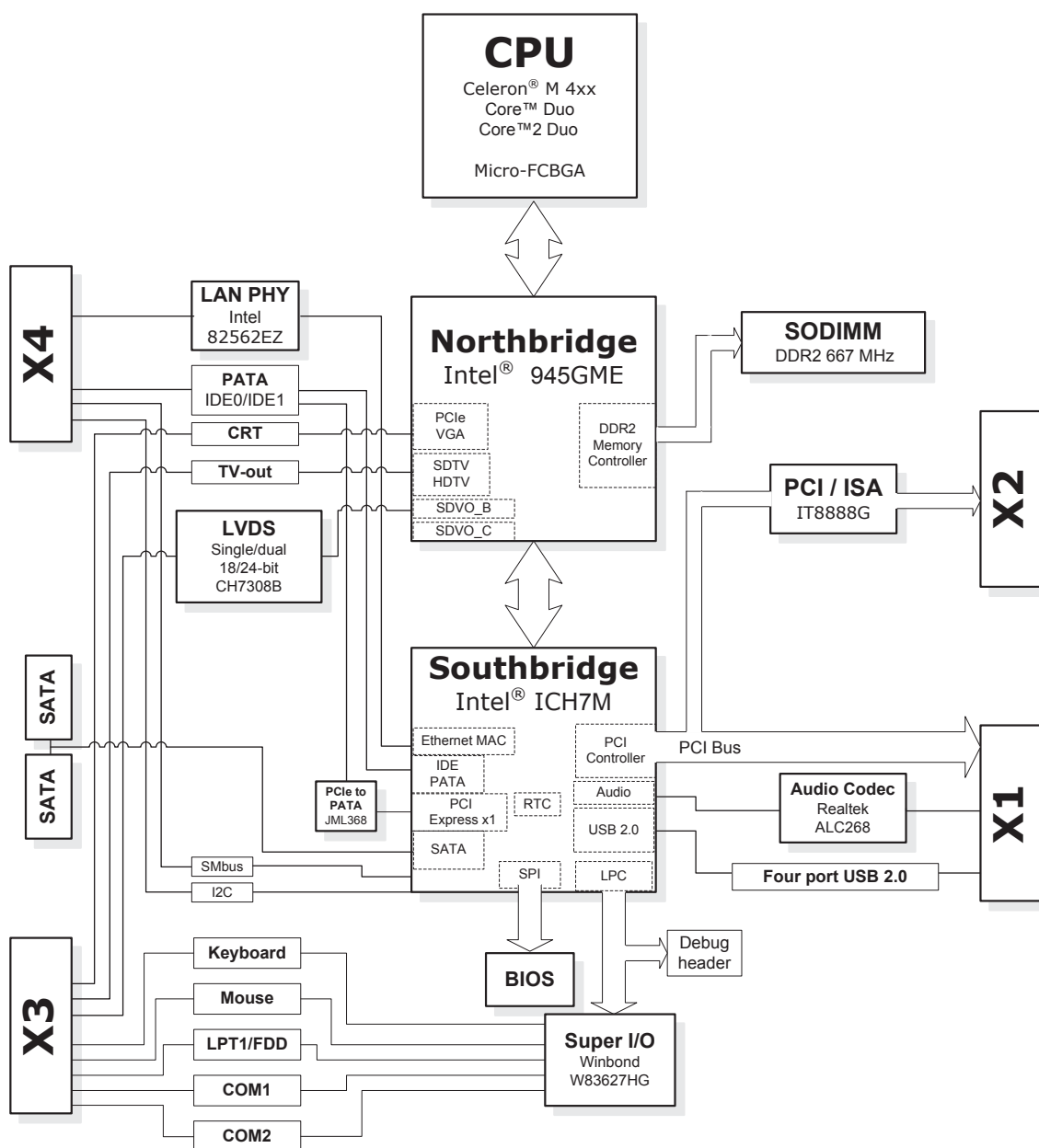
Embedded XP BSP

Windows® CE 6.0 BSP

Linux® 2.6.x BSP

AIDI I²C Library for Win32, WinCE and Linux®

Functional Diagram



Ordering Information

Modules

Model Number	Description/Configuration
ETX-NR667-L7400	ETX® Module with Intel® Core™2 Duo L7400 processor at 1.5 GHz
ETX-NR667-L2400	ETX® Module with Intel® Core™ Duo L2400 processor at 1.66 GHz
ETX-NR667-U7500	ETX® Module with Intel® Core™2 Duo U7500 at 1.06 GHz
ETX-NR667-423	ETX® Module with Intel® Celeron® M 423 processor at 1.06 GHz

Accessories

Model Number	Description/Configuration
Heat Spreaders	
HTS-NR667-B	Heatspreader for ETX-NR667 (BGA CPU) with threaded standoffs
Passive Heatsinks	
THS-NR667-B	Low Profile Heatsink for ETX-NR667 (BGA CPU) with threaded standoffs
Heatsink with Active Cooling	
THSF-NR667-B	High Performance Heatsink with Fan for ETX-NR667 (BGA CPU) with threaded standoffs



Features

- Intel® Atom™ Processor N270 at 1.6 GHz
- Intel® 945GSE/ICH7-M chipset
- Up to 2 GB DDR2 533 MHz SDRAM
- Single/dual 18/24-bit LVDS and TV-out
- 2 SATA, 2 IDE (PATA), LAN, USB 2.0

Specifications

Core System

CPU	BGA type Intel® Atom™ N270, 1.6 GHz with 512 KB L2 cache, 2.5 Watt On-die, primary 32-kB instruction cache and 24-kB, write-back data cache Hyperthreading (2-thread) support Advanced gunning transceiver logic (AGTL+) bus driver technology Enhanced Intel SpeedStep® Technology Source synchronous double-pumped (2x) Address Source synchronous quad-pumped (4x) Data C0 - C4 low power states supported
Memory	Single SODIMM socket supporting : - up to 2 GB of non-ECC, un-buffered, 533 MHz standard DDR2 SODIMM memory - Virtium SSD type module combining NAND flash SATA Solid State Drive (SATA SSD) and DDR2 memory on a single SODIMM module (ETX-AT-N270-SD only)
Chipset	Intel® 945GSE Express Graphic Memory Controller Hub and Intel® I/O Controller Hub 7 Mobile (ICH7-M)
BIOS	AMIBIOS®8 with CMOS backup in 8 Mbit SPI BIOS
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	Programmable timer ranges to generate RESET
Expansion Busses	PCI 32-bit: PCI ver 2.3 at 33MHz, supporting 4 bus masters Fast ISA 16-bit (through PCI/ISA bridge) SMBus, I²C

Video

Chipset	945GSE GMCH integrated chipset supports dual independent displays
CRT Interface	Analog CRT support up to 2048 x1536 resolution
LVDS Interface	Dual channel 18/24bit with Chronitel 7308B on SDVO
TV-out	NTSC/PAL, SDTV, HDTV supported (without Macrovision)

Audio

Chipset	Integrated on Intel® I/O Controller Hub 7 Mobile (ICH7-M)
Audio Codec	Realtek ALC 262 HDA compatible

LAN

Chipset	ICH7M integrated MAC with Intel® 82562 PHY
Interface	10/100 Mbps with Wake-on-LAN and Alert on LAN support

Multi I/O

IDE (PATA)	Dual channel IDE with UDMA 33
SATA	Two channels SATA-150 with connectors on module (ETX-AT-N270-SD supports one SATA channel only)
USB	Supports up to four ports v. 2.0

Super I/O

Chipset	W83627HG
Serial	Two high speed RS-232C ports (COM1/COM2)
IrDA	Supports SIR IrDA 1.1 compliant
Parallel	SPP, EPP, and ECP mode (pin out shared with FDD)
FDD	One drive (pin out shared with LPT)
Keyboard & Mouse	One PS/2 keyboard and one PS/2 mouse

TPM

Chipset	Infineon SLB9635TT1.2
Type	TPM 1.2

Power Specifications

Input Power	AT mode (5 V only) and ATX mode (5 V and 5 Vsb)
Power States	S0, S1, S3, S4, S5
Power Consumption	9 W typical (with Atom® N270 and 1 GB memory)

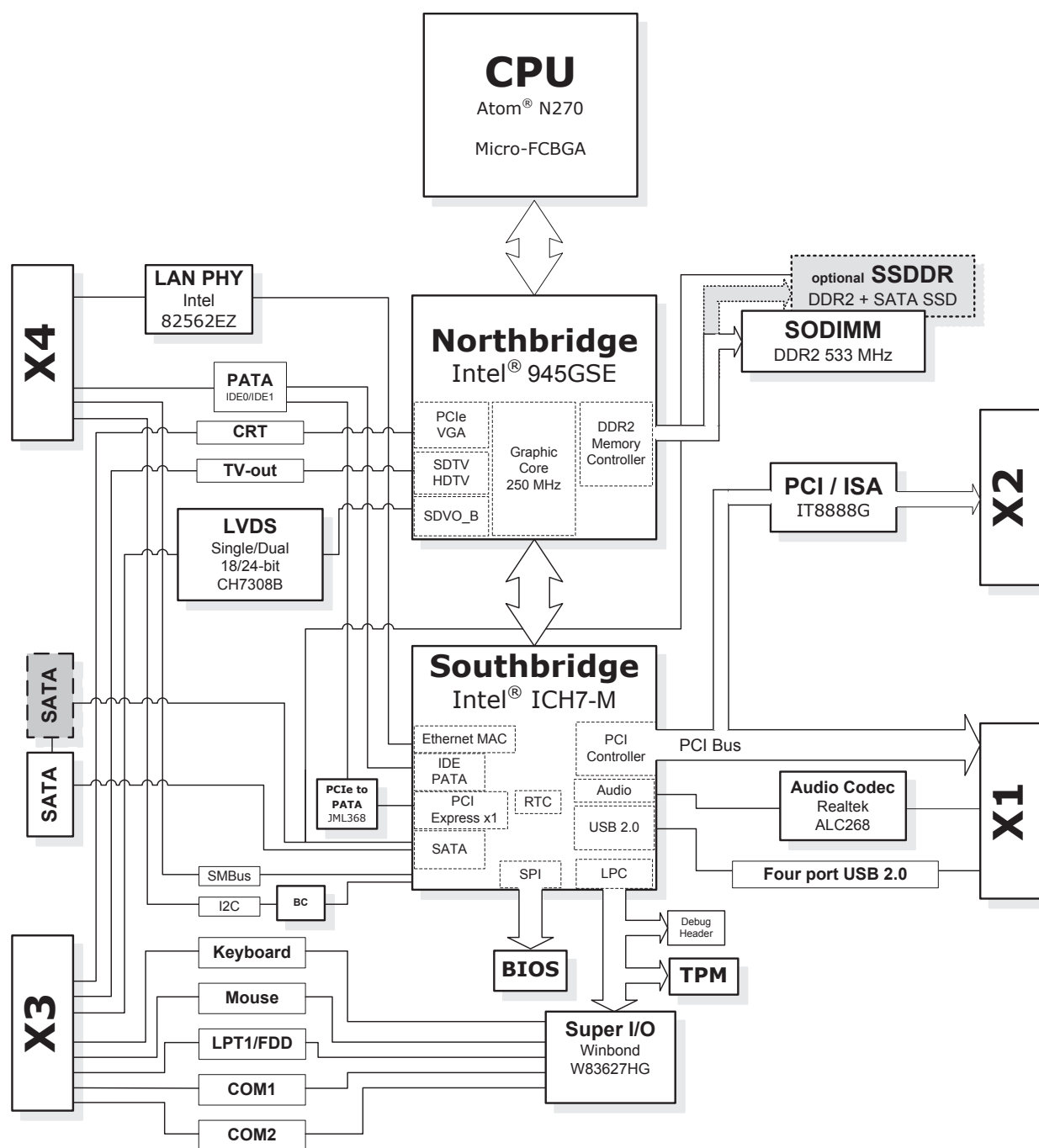
Mechanical and Environmental

Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Humidity	5% to 95% relative humidity, non condensing
Shock	15G peak-to-peak, 11ms duration, non-operation
Vibration	Non-operation: 1.88 Grms, 5-500 Hz, each axis Operation: 0.5 Grms, 5-500 Hz, each axis
Form Factor	ETX® rev. 3.02, size 95 mm x 114 mm
Certifications	CE, FCC

Operating Systems

Standard Support	Windows® Vista 32-bit Windows® XP 32-bit Linux® 2.6.x
Extended Support	Embedded XP BSP WinCE 6.0 BSP Linux® 2.6.x BSP AIDI I²C Library for Win32, WinCE and Linux®

Functional Diagram



Ordering Information

Modules

Model Number	Description/Configuration
ETX-AT-N270-18	ETX Module with Intel® Atom™ Processor N270 at 1.6 GHz with 18-bit integrated LVDS support
ETX-AT-N270	ETX® Module with Intel® Atom™ Processor N270 at 1.6 GHz with 24-bit LVDS support
ETX-AT-N270-18SD	ETX Module with Intel® Atom™ Processor N270 at 1.6 GHz with 18-bit integrated LVDS and SSDDR support
ETX-AT-N270-SD	ETX Module with Intel® Atom™ Processor N270 at 1.6 GHz with 24-bit LVDS and SSDDR support

Accessories

Model Number	Description/Configuration
Heat Spreaders	
HTS-EAT-B	Heatspreader for ETX-AT (BGA CPU) with threaded standoffs
Passive Heatsinks	
THS-EAT-B	Low Profile Heatsink for ETX-AT (BGA CPU) with threaded standoffs
SSDDR	SSDDR by Virtium Technology Inc. is available in following configurations: 1GB DDR2, 4GB-16GB SSD 2GB DDR2, 4GB-16GB SSD



Features

- Low power AMD Geode™ LX 800
- Display support for VGA, TFT LVDS, and TV-out
- USB 2.0, Serial ATA and IDE support
- Optional 128/256 MB DDR soldered onboard
- Serial Console, EEPROM CMOS backup, USB boot legacy

Specifications

Core System

CPU	AMD Geode™ LX 800 CPU 500 MHz
Memory	Single SODIMM socket for up to 512 MB DDR at 333/400 MHz Optional 128/256 MB DDR at 333/400 MHz soldered on module Total memory support 768 MB
Chipset	AMD Geode™ CS5536 companion device
BIOS	Phoenix® AWARD 2 Mb Flash BIOS with ACPI and APM 1.2 power management with console redirection and CMOS backup in onboard EEPROM
Hardware Monitor	Supply voltages and CPU temperature
Watchdog Timer	255-level timer generates system reset
Expansion Busses	16-bit ISA and 32-bit PCI rev. 2.2

Video

Chipset	Integrated on AMD Geode™ LX
CRT Interface	Analog VGA support up to QXGA 1920 x 1440 resolution
LVDS Interface	24-bit TFT supports resolutions up to 1280 x 1024 x 24-bit at 60 Hz
TV-out (optional)	VT1622A, supports NTSC/PAL

Audio

Chipset	Integrated on CS5536
Audio Codec	AC'97 Realtek ALC655 codec

LAN

Chipset	Intel® 82551QM
Interface	10BASE-T/100BASE-TX with TCP/UDP/IP checksum off-loading and PXE boot support

Multi I/O

SATA	One port for up to two ATAPI devices with UDMA support
PATA (IDE)	Two ports for up to four ATAPI devices with UDMA support
USB	Up to four ports USB 2.0
Serial	Two high speed RS-232C
LPT/FDD	Shared
Keyboard & Mouse	One PS/2 keyboard and one PS/2 mouse

Power Specifications

Input Power	AT mode (5 V only) and ATX mode (5 V and 5 Vsb)
Power States	S0, S1, S4, S5
Power Consumption	7 W typical (LX800 with 512 MB DDR memory)

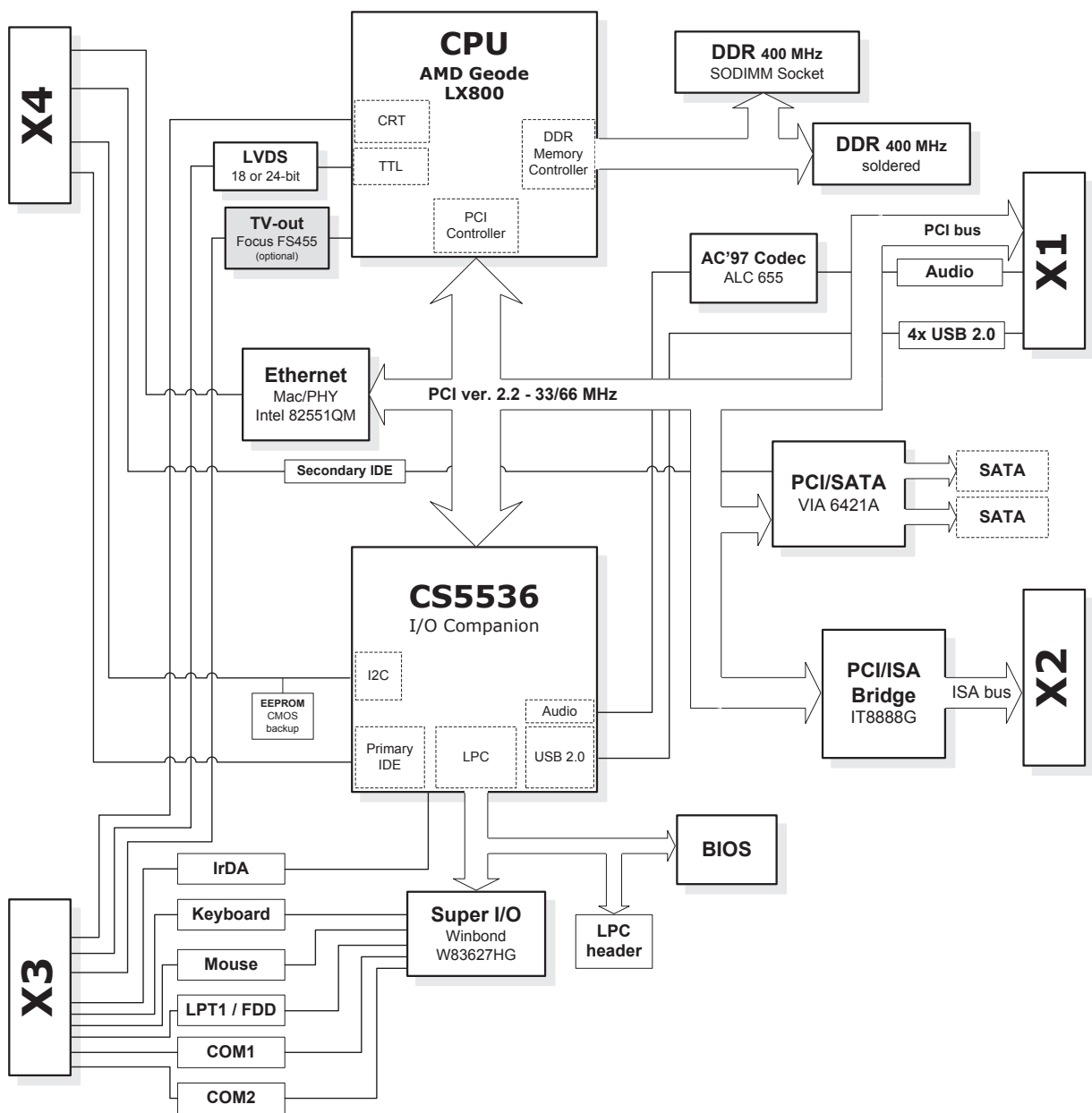
Mechanical and Environmental

Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Humidity	5% to 90% Non-condensing
Shock	15G peak-to-peak, 11ms duration, non-operation
Vibration	Non-operation: 1.88 Grms, 5-500 Hz, each axis Operation: 0.5 Grms, 5-500 Hz, each axis
Form Factor	ETX® rev 2.7, size 95 mm x 114 mm
Certifications	CE, FCC

Operating Systems

Standard Support	Windows® XP 32-bit Windows® NT 2K Linux® 2.6.x
Extended Support	Embedded® XP BSP Windows® CE 5.0/6.0 BSP Linux® 2.6.x BSP AIDI I²C Library for Win32 and WinCE

Functional Diagram



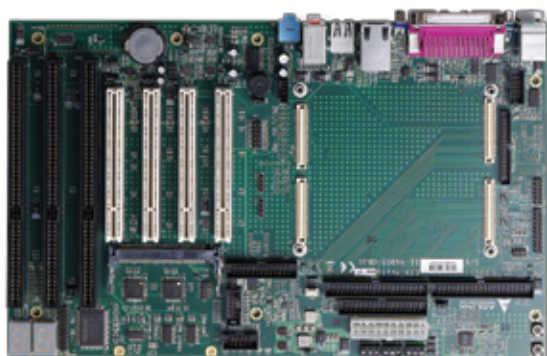
Ordering Information

Modules

Model Number	Description/Configuration
ETX-GLX-800/0	AMD Geode™ LX 800 module
ETX-GLX-800/128	AMD Geode™ LX 800 module with 128 MB DDR soldered
ETX-GLX-800/256	AMD Geode™ LX 800 module with 256 MB DDR soldered

Accessories

Model Number	Description/Configuration
Heat Spreaders	
HTS-GLX	Heatspreader for ETX-GLX with threaded standoffs



Features

- Four PCI slots, three ISA slots, one Mini PCI slots
- POST Code Diagnostics
- Secondary Multi I/O
- Disk-On-Chip and CF Card support
- Audio Amplifier

Specifications

Core System

Core Module Interface	ETX® ver 2.7 (3.0)
Board Form factor	304.8 mm x 190 mm (ATX)
Expansion Busses	Four 32-bit PCI slots Three 16-bit ISA slots One MiniPCI slot
POST LEDs	Onboard diagnostics for BIOS POST codes
IDE Support	Four IDE devices (two connectors)
Parallel Port	One port SSP, ECP, and EEP mode
Serial Port	Two 16550 compatible RS-232 ports (COM1/2) Two additional ports COM3/4 from secondary multi I/O
KB/Mouse	Two 6-pin mini DIN connectors (on rear I/O panel)
USB	Four ports (on rear I/O panel) v1.1 and v2.0 compatible
LAN	RJ-45 (on rear I/O panel)
Audio	Line-In/Out, Speaker-out
Video	TV-out (NTSC, PAL), LVDS 32-bit

Secondary Multi I/O

FDD	Up to two floppy drives
Serial	One 16550 compatible RS-232 ports (COM3), one RS-232/422/485 Compatible port (COM4) and one IrDA header
Parallel	Secondary parallel port
Manual says	F75111R is a low power general purpose IO chip providing 20 GPIO. (p.8, Sec. 1.1)

Audio

Type	Onboard amplifier with Line-In, Speaker-out and Mic (on rear I/O panel)
------	---

Video

CRT	DB25 connector for analog VGA displays (on rear I/O panel)
LVDS	Onboard header supporting 36-bit LVDS
TV-out	Onboard header for PAL/NTSC TV

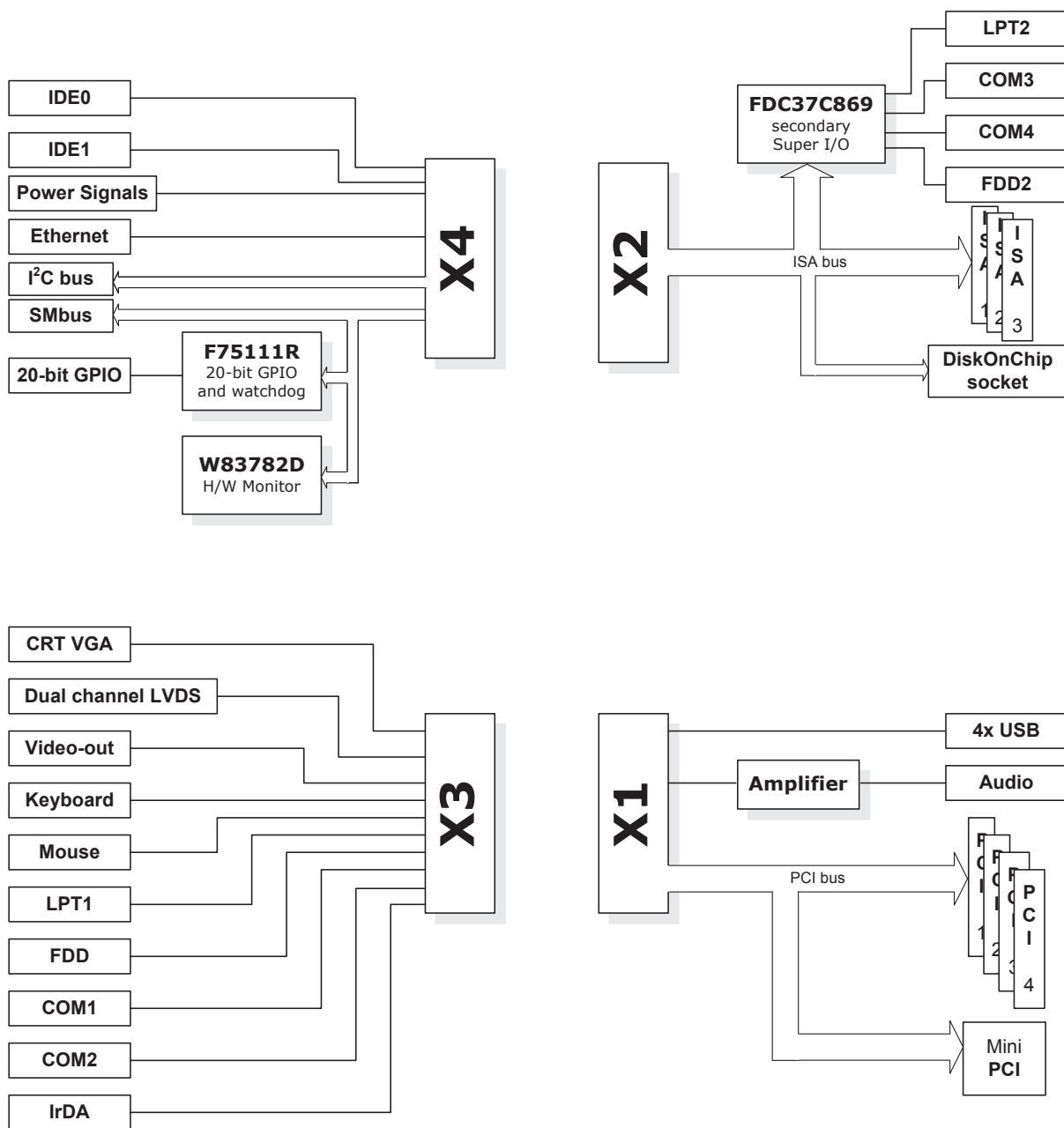
POST Code Display

LED	2-digit 7-segment LED display
Function	Displays POST (Power On Self Test) code

Power and Operation

Connectors	ATX and AT (P8/P9) onboard
Switches	Onboard RESET and ATX switch

Functional Diagram



Ordering Information

Carrier

Model Number	Description/Configuration
ETX-Proto	ETX® Reference Carrier Board in ATX form factor (includes CF socket assembly, UDMA HDD cable, SATA cable, FDD cable, TV-out cable)

Starter Kit - ETX

This Computer-on-Module Starter Kit gets you going with Carrier Board Design and Software Verification in no time



Features

- ETX module of choice
- CPU, Memory of choice
- Thermal Solution (heatspreader, and heatsink) of choice
- Reference Carrier Board
- Schematics, Design Guide, and User Manuals
- ADLINK USB Stick with Documentation, Software, and BSPs

The Starter Kit consists of an ETX® core module with reference carrier board that offers four PCI slots, three ISA slots, SDVO, CRT, LVDS, TV-out, USB 2.0, LAN, and Super I/O.

The Starter Kit comes with full baseboard schematics, ETX® design guide, product manuals and BSP. Everything needed to get a user going with his own baseboard design and software verification in no time.

Contents

Standard Items

- ETX-Proto evaluation carrier board
- Accessory kit:
 - IDE cable
 - SATA cable
 - TV out cable
 - CF adapter
 - USB Memory Stick with documentations, drivers, libraries, and BSP for Linux, WinCE, Embedded XP
 - Baseboard design guide and product manual

Optional Items

- ETX® module of choice
- Socket type CPU of choice
- Memory of choice
- Thermal solution of choice (heatspreader, heatsink)

Ordering Information

ADLINK provides "Custom Starter Kit" services. We offer several options for you to select your preferred items for your application development.

The starter kit contains the following items:

Select a core module, memory, thermal solution, and CPU (for socket type) according to your needs



Contact an ADLINK sales representative in your region



Get the specific part number for your starter kit

Custom Carrier Board Design Services from ADLINK

Combining our expertise in data acquisition and I/O with motion control and machine vision allows us to provide customized carrier board design solutions drawn from our market proven add-on card designs and complemented by extensive driver and software support.

The quality of our large base of IP has already been proven in the marketplace via our wide range of add-on boards for analog and digital I/O, machine vision, and motion control. Our manufacturing and design ecosystem consists of hardware designers, and firmware and software developers and is backed up by our in-house production line with a well-stocked inventory of electronic components.

- Analog and digital I/O
- Frame grabber and motion control
- Industrial communication
- Readily available software drivers and OS support packages

By using our standard add-on cards, and ETX or COM Express evaluation carriers, you will be able to build and verify a functional prototype very early on in the development cycle.

The same IP and components used on these add-on cards will be included on the custom carrier board we build for you.

Your custom carrier board is designed through a simple 5 step process:

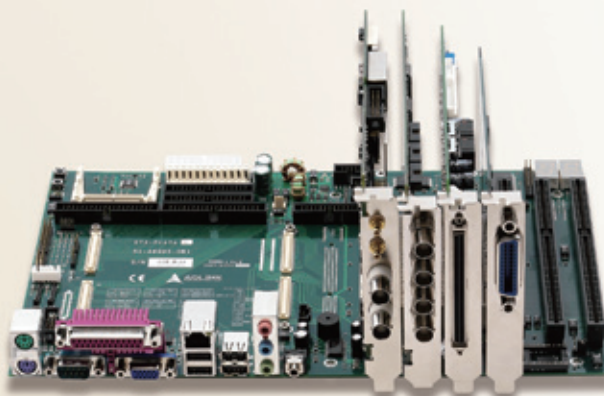
Select an ADLINK ETX or COM Express development kit.

Select ADLINK add-on boards to completed the functionality of the development kit.

Build a functional prototype from these stock items at your location. Test the prototype and begin developing your software.

In the meantime ADLINK will design and manufacture your custom carrier board and ship it to you once ready.

Add the ETX/COM Express module of choice to you new custom carrier and do final testing on the new system.



Build a functional prototype from stock items
ETX-Proto evaluation carrier with ADLINK DAC add-on cards



ADLINK
TECHNOLOGY INC.



Analog I/O

Input

16 ~ 384 channels
100KS/s ~ 60MS/s sampling rate
12-bit to 24-bit resolution
Simultaneous or multiplexing sampling

Output

8 ~ 32 channels
Static output or up to 1MS/s waveform generation
Current or voltage output
12-bit to 16-bit resolution



Digital I/O

Input

16 ~ 512 channels
TTL or isolated input
Static or 20MS/s high-speed DI

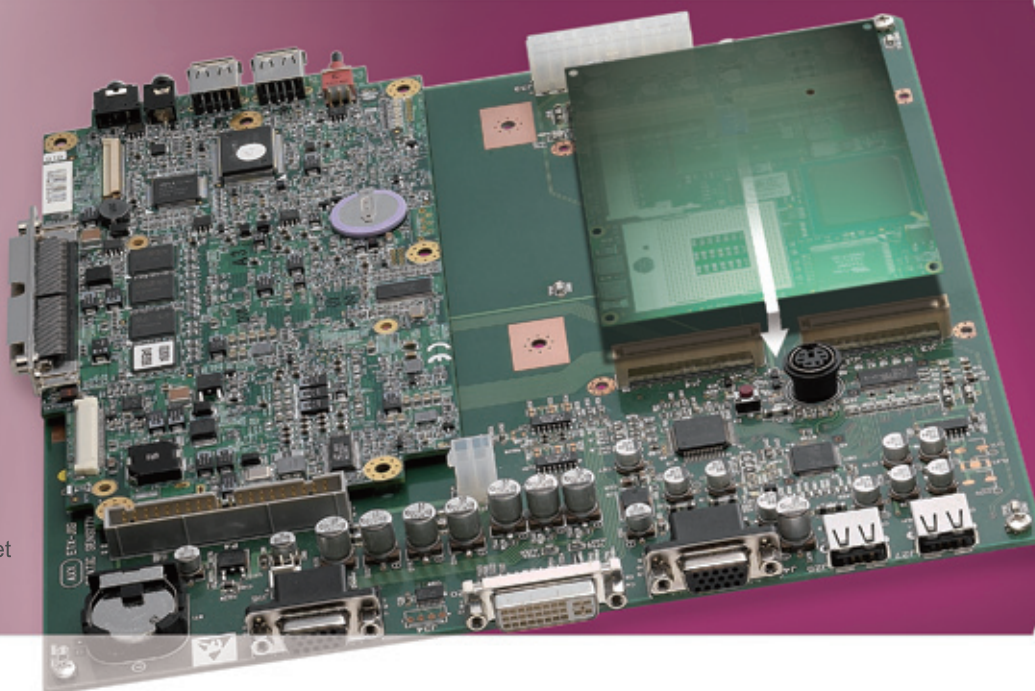
Output

16 ~ 512 channels
TTL, isolated output, or relay output
For isolated DO, driving capacity from 500mA (Darlington) to 5A (Power relay)
Static or 20MS/s high-speed DI



Industrial Communication

RS-232
RS-422
RS-485
CAN bus
GPIB
10/100/1000 Mbps Ethernet
USB



Motion Control

Interface

Pulse train, Analog type (DSP),
SSCNET II, SSCNET III

Control Functions

Controllable Axes: Depends on users' demand
Linear / Circular interpolation
Contouring
Position compare & triggering
Home search
Position / Speed change on-the-fly
Simultaneously start / stop
Position latch
Others by request



Image Capturing

Digital

Camera Link
IEEE-1394
GigE Vision

Analog

Standard :
NTSC/PAL, EIA/CCIR
Non-Standard :
Mega-Pixel, Progressive Scan,
Double speed

Get Three Carrier Board Samples in just 30 Working Days!

Don't want to spend the time and resources on developing your own carrier boards? No problem! With our carrier board design service, you will receive samples in only 30 working days! Designing a custom carrier board is fast and cost-effective compared to a full custom solution. We will help get your product to market in a minimum amount of time and for a fraction of the cost. Of course, if you still decide to design your own carrier boards, we will support you with relevant schematics.

