IP400

ETX Baseboard

USER'S MANUAL

Version 1.0

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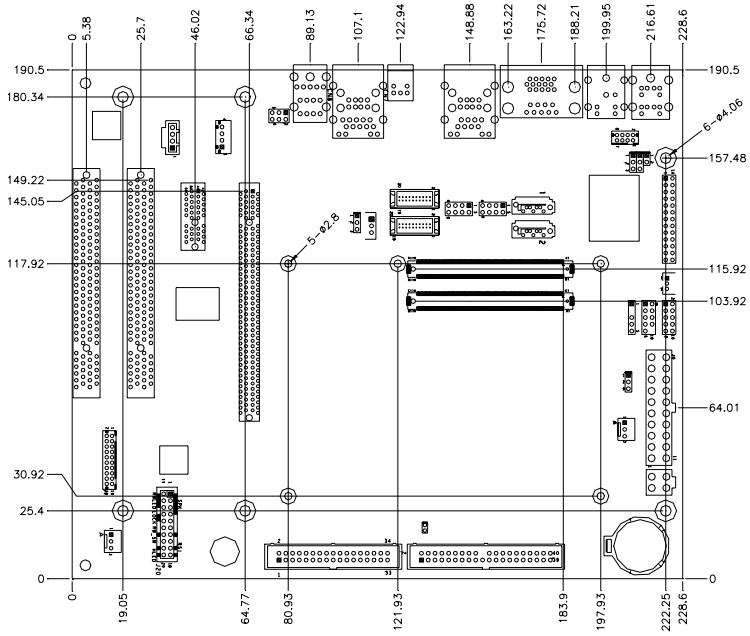
The IP400 Baseboard

Introduction

IP400 Specifications

Product Name	IP400 (for COM ETX module)
Form Factor	Flex ATX for COM ETX CPU module
Battery	Lithium Battery for real time clock
Audio	Derived from COMETX Module AC97 Codec ALC655 w/ 6 channels (Line-out, Line-in, Mic.) + NS LM4940 8ohm 2W stereo audio power amplifier
USB	Derived from COMETX Module, pin header (8 ports)
IDE	Derived from COMETX Module, one channel Compact Flash Type II and DOM
VGA	Derived from COMETX Module, DB15 connector
LVDS	Derived from COMETX Module, DF13 connector x 2
TV-Out	Derived from COMETX Module, composite connector
LAN	Derived from COMETX Module, 10/100BT LAN1 Marvell 88E8053 PCI-e Gigabit LAN controller x1 for LAN2
Super IO	Winbond LPC I/F SIO W83627EHF: Parallel x1, COM1, COM2 (RS232), Slim FDC 1.44MB, IrDA x1, PS/2 KB/Mouse & hardware monitor (3 thermal inputs, 4 voltage monitor inputs, VID0-4, 3 fan headers)
2nd Super IO (option)	Fintek F81216D for COM3, 4 (RS-232)
Digital I/O	Supports 4 in and 4 out w/ pin header
Watch-Dog Timer	Yes (256 segments: 0, 1, 2,..., 255 sec/min)
Edge Connector (With the same I/O shield w/ IP400)	DB15 + DB9 stack connector x1for VGA & COM1 Dual USB stack connector for USB1, 2 Dual RJ45 stack connector x1 for LAN1, 2 PS/2 DIN connector x1 RCA connector x3 for Audio (Line-out, Line-in & Mic) SPDIF connector x1 S-Video connector x1 RCA connector x1 for TV-Out
Onboard Connector / Header	44-pin header x1 for HDDs & DOM DF13 x2 for LVDS SATA connector x2 for two SATA HDDs 5x2 pins header x3 for COM2~4 4x2 pins header x3 for USB3~8 34-pin box-header x 1 for Floppy 26-pin box-header x 1 for Printer
Expansion Slots	PCI-e 16-lane slot x1 PCI-e 1-lane slot x1 PCI (32-bit) slot x2
PCB Layer	4 layers
Board Size	7.5” x 9”

Board Dimensions

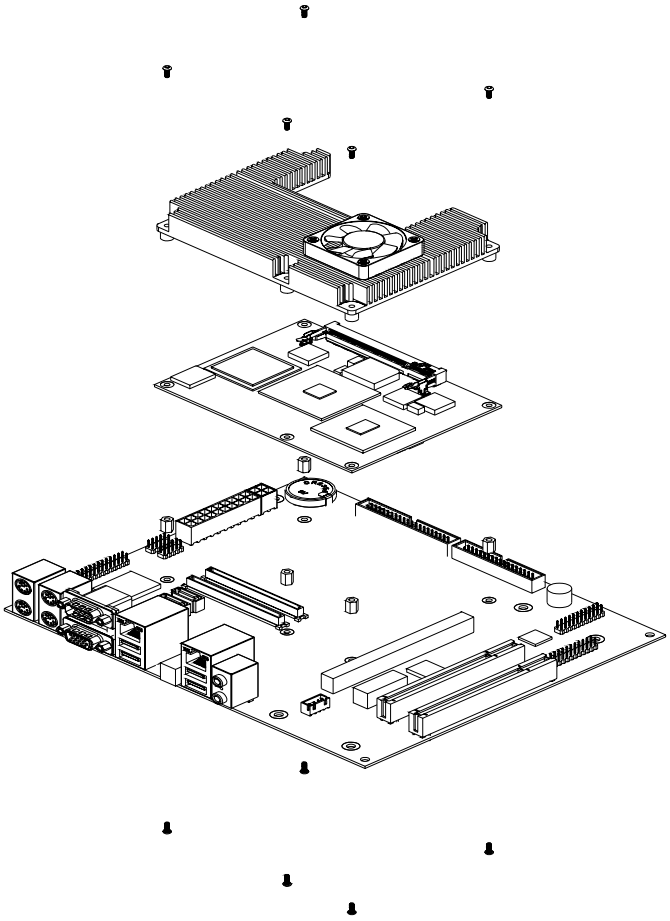


Installations

This section provides information on how to use the jumpers and connectors on the IP400 in order to set up a workable system. The topics covered are:

Installing the CPU Module

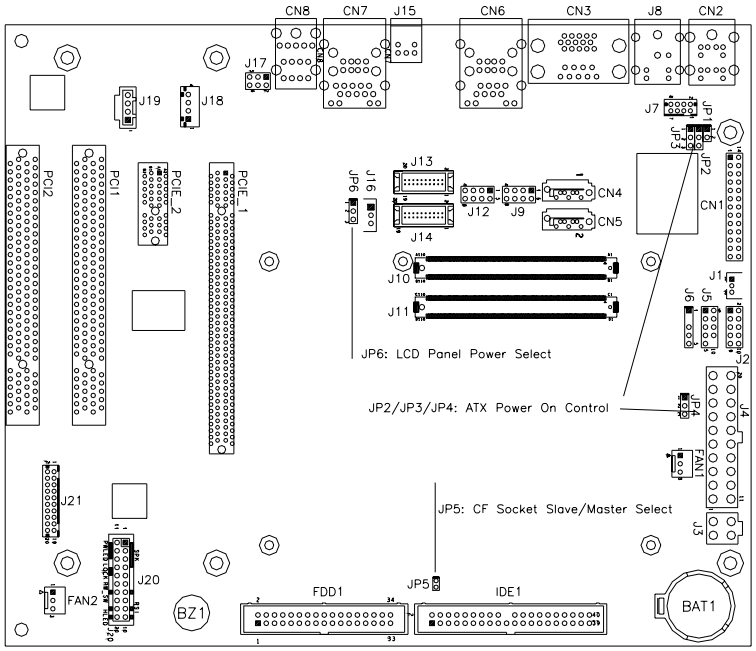
The IP400 board supports COM Express CPU module such as the ET810. Below is a picture showing how the CPU module and the heatsink should be installed on the IP400 baseboard. There are five holes on the IP400 that can be used to screw the three parts together – the heatsink, the CPU module and the baseboard.



Setting the Jumpers

Jumpers are used on IP400 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on IP400 and their respective functions.

Jumper Locations on IP400



JP2, JP3, JP4: ATX Power On Control

JP2, JP3	JP4	ATX Power On Control
		With LPC I/O
		With COM Express' Southbridge

JP5: CompactFlash Slave/Master Selection

JP5	CF Setting
	Master
	Slave

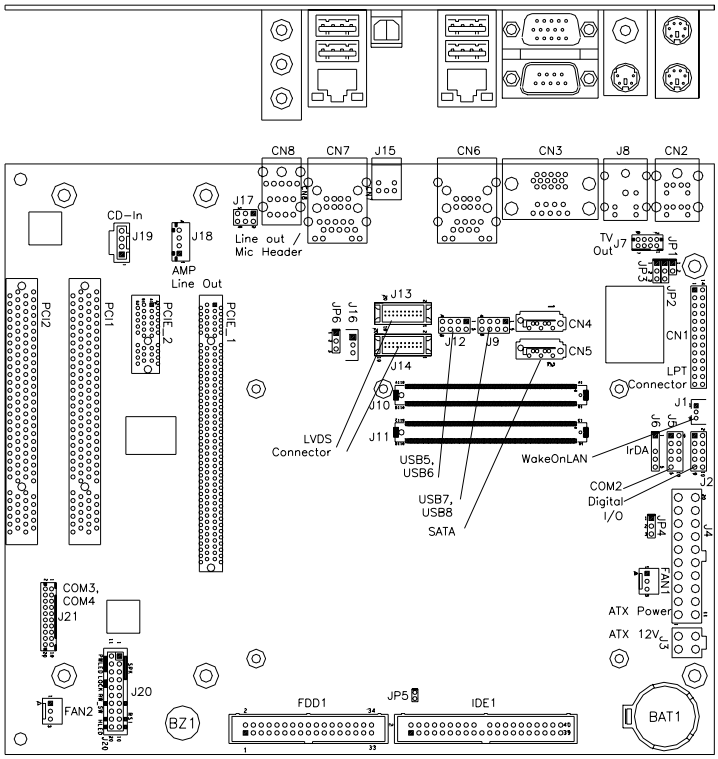
JP6: LCD Panel Power Selection

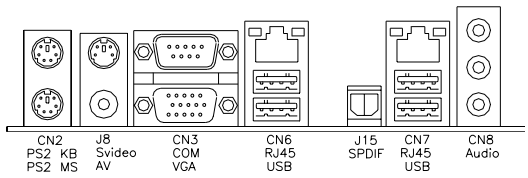
JP6	LCD Panel Power
	3.3V
	5V

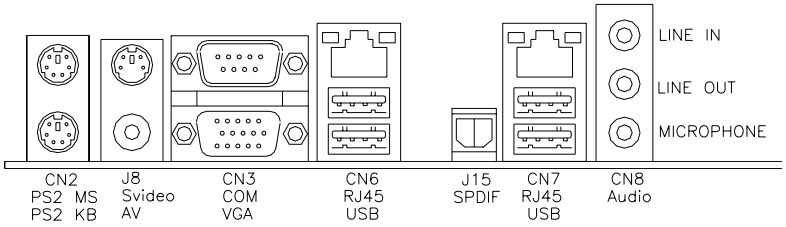
Connectors on IP400

The connectors on IP400 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on IP400 and their respective functions.

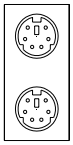
Connector Locations on IP400







CN2: PS/2 Keyboard and PS/2 Mouse Connectors

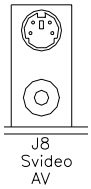


PS/2 Mouse

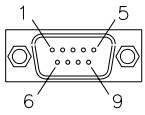
PS/2 Keyboard

Signal Name	Keyboard	Mouse	Signal Name
Keyboard data	1	1	Mouse data
N.C.	2	2	N.C.
GND	3	3	GND
5V	4	4	5V
Keyboard clock	5	5	Mouse clock
N.C.	6	6	N.C.

J8: S-Video and RCA Connectors

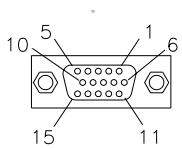


CN3: COM1 and VGA Connector



COM1

Signal Name	Pin #	Pin #	Signal Name
DCD	1	6	DSR
RXD	2	7	RTS
TXD	3	8	CTS
DTR	4	9	RI
GND	5	10	Not Used



VGA

Signal Name	Pin #	Pin #	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
N.C.	9	10	GND
N.C.	11	12	N.C.
HSYNC	13	14	VSYNC
NC	15		

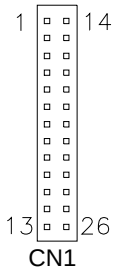
CN6: 10/100 RJ-45 and USB1/2 Ports

J15: SPDIF Out Connector

CN7: Gigabit RJ-45 and USB3/4 Ports

CN8: Audio Connector

CN1: Parallel Port Connector

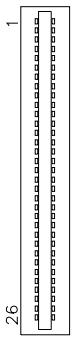


CN1

Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13	N/A	N/A

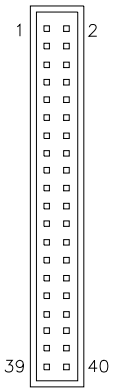
FDD1: Floppy Drive Connector

FDD1is a slim 26-pin connector and will support up to 2.88MB FDD.



Signal Name	Pin #	Pin #	Signal Name
VCC	1	2	INDEX
VCC	3	4	DRV_SEL
VCC	5	6	DSK_CH
NC	7	8	NC
NC	9	10	MOTOR
DINST	11	12	DIR
NC	13	14	STEP
GND	15	16	WDATA
GND	17	18	WGATE
GND	19	20	TRACK
NC	21	22	WPROT
GND	23	24	RDATA
GND	25	26	SIDE

IDE1: IDE Connector



Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Protect pin
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

FAN1: CPU Fan Power Connector

FAN1 is a 3-pin header for the CPU fan. The fan must be a 12V fan.

Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

FAN2: System Fan Power Connector

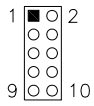
Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

J1: Wake On LAN Connector

J1 is a 3-pin header for the Wake On LAN function which will function properly only with an ATX power supply with 5VSB that has 200mA.

Pin #	Signal Name
1	+5VSB
2	Ground
3	-PME

J2: Digital I/O



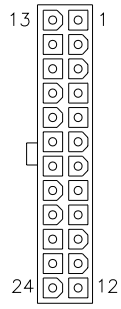
Signal Name	Pin	Pin	Signal Name
GND	1	2	VCC
OUT3	3	4	OUT1
OUT2	5	6	OUT0
IN3	7	8	IN1
IN2	9	10	IN0

J3: ATX_12V Connector

J3 can be used in situations where the 12V current from the ATX power is insufficient to supply needed current.

Pin #	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

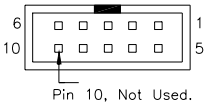
J4: ATX Power Supply Connector



Signal Name	Pin #	Pin #	Signal Name
3.3V	13	1	3.3V
-12V	14	2	3.3V
Ground	15	3	Ground
PS-ON	16	4	+5V
Ground	17	5	Ground
Ground	18	6	+5V
Ground	19	7	Ground
-5V	20	8	Power good
+5V	21	9	5VSB
+5V	22	10	+12V
+5V	23	11	+12V
Ground	24	12	+3.3V

CN4, CN5: Serial ATA Connectors

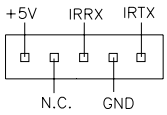
J5: COM2 Serial Port



COM2

Signal Name	Pin #	Pin #	Signal Name
DCD, Data carrier detect	1	6	DSR, Data set ready
RXD, Receive data	2	7	RTS, Request to send
TXD, Transmit data	3	8	CTS, Clear to send
DTR, Data terminal ready	4	9	RI, Ring indicator
GND, ground	5	10	Not Used

J6: IrDA Connector



Pin #	Signal Name
1	+5V
2	No connect
3	Ir RX
4	Ground
5	Ir TX

J7: TV out (DF11)

Signal Name	Pin	Pin	Signal Name
NC	1	2	NC
Y	3	4	Ground
C/Pr	5	6	Ground
CVBS/Pb	7	8	Ground

J9: USB7, USB8 Port Pin Header

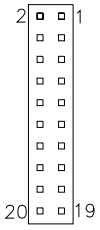
Signal Name	Pin	Pin	Signal Name
Vcc	1	5	Ground
D-	2	6	D+
D+	3	7	D-
Ground	4	8	Vcc

J12: USB5, USB6 Port Pin Header

Signal Name	Pin	Pin	Signal Name
Vcc	1	5	Ground
D-	2	6	D+
D+	3	7	D-
Ground	4	8	Vcc

J13, J14: LVDS Connectors (1st channel, 2nd channel)

The LVDS connectors on board consist of the first channel (J13) and second channel (J14).



Signal Name	Pin #	Pin #	Signal Name
TX0-	2	1	TX0+
Ground	4	3	Ground
TX1-	6	5	TX1+
5V/3.3V	8	7	Ground
TX3-	10	9	TX3+
TX2-	12	11	TX2+
Ground	14	13	Ground
TXC-	16	15	TXC+
5V/3.3V	18	17	ENABKL
+12V	20	19	+12V

J17: Line out / Mic Header

Signal Name	Pin	Pin	Signal Name
R out	1	2	L out
GND	3	4	GND
Mic1	7	8	Mic2

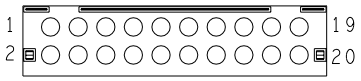
J18: AMP Line Out Header

Pin #	Signal Name
1	L out
2	Ground
3	Ground
4	R out

J19: CD-In Connector

Pin #	Signal Name
1	CD L
2	Ground
3	Ground
4	CD R

J21: COM3, COM4 20-pin Header



Signal Name	Pin #	Pin #	Signal Name
DCD, Data carrier detect	1	2	DSR, Data set ready
RXD, Receive data	3	4	RTS, Request to send
TXD, Transmit data	5	6	CTS, Clear to send
DTR, Data terminal ready	7	8	RI, Ring indicator
GND, Ground	9	10	Not used

PCIE_1: 16-line PCI-Express Connector

PCIE_2: 1-line PCI –Express Connector

PCI1, PCI2: PCI Slots

J10, J11: COM Express Type 2 Connectors