

Quick Installation Guide

Version 1.1

EmETX-i602

ETX Embedded Intel Celeron ULV 400MHz
CPU Model with one SODIMM up to
512MB SDRAM, CRT\Flat Panel SVGA,
one Realtek 10/100 Mbps Fast Ethernet,
AC97 3D Audio

Part Number: 4041060200110P

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Warning

Single Board Computers and their components contain very delicate Integrated Circuits (IC). To protect the Single Board Computer and its components against damage from static electricity, you should always follow the following precautions when handling it :

1. Disconnect your Single Board Computer from the power source when you want to work on the inside
2. Hold the board by the edges and try not to touch the IC chips, leads or circuitry
3. Use a grounded wrist strap when handling computer components.
4. Place components on a grounded antistatic pad or on the bag that came with the Single Board Computer, whenever components are separated from the system
5. The CPU need the Heat Sink on it.

Technical Support

If you have any technical difficulites, please consult the user's manual first at:

<ftp://ftp.arbor.com.tw/pub/manual>

Please do not hesitate to call or e-mail our customer service when you still can not find out the answer.

<http://www.arbor.com.tw>

E-mail:info@arbor.com.tw

Specifications

General Specifications

- **CPU** : Intel Ultra Low Voltage Embedded Celeron 400MHz to Pentium3 933MHz processor with FSB 100/133 MHz EBGA package.
- **Chipset** : VIA VT8606 TwisterT with Integrated Savage4 AGP 4X Graphics core and VT82C686B Super "South Bridge"
- **BIOS** : AWARD® Flash BIOS
- **L2 Cache** : Integrated on CPU (256 KB ~ 512 KB)
- **DRAM Memory** : Onboard SODIMM socket up to 512MB of SDRAM
- **Enhanced IDE with UltraDMA** : supports 2 port and up to 4 ATAPI devices, Ultra DMA transfer 33 / 66 and 100 MB/sec.
- **Real-time Clock** : built-in chipset with lithium battery backup(built on carrier board). CMOS data backup of BIOS setup and BIOS default.

High Speed Multi I/O

- **Chipset** : VIA VT82C686B
- **Serial Ports** : Two high speed RS-232C ports (COM1). One high speed RS-232C/422/485 port COM2 (jumper selectable). Both with 16C550 compatible UART and 16 byte FIFO.
- **USB** : 4 onboard USB ver 1.1 ports
- **SIR Interface** : onboard IrDA TX/RX port
- **Bi-directional Parallel Port** : SPP, EPP and ECP mode.
- **Keyboard and Mouse** : support one PS/2 Keyboard and one PS/2 Mouse
- **Audio Chipset**: VIA VT82C686B, AC97 2.0 compliant, Multistream Direct Sound and Direct Sound 3D acceleration.

Network Interface Controller

- **Chipset** : Realtek 8100BL or 8100C, 10/100 Mbps

Display Controller

- **Chipset** : 4x AGP S3 Savage4 3D and S3 Savage 2000 2D engines integrated in VT8606 supports up to 32MB of Shared Memory
- **Display Type** : Flat Panel and CRT displays up to 1280x1024 @ 32 bpp
 - Lcd interface : Flat Panel 36-bit TFT/DSTN interface
 - LVDS interface(PBE-1000) : Scalable Bandwidth is ranging from 25MHz~112MHz(VGA~SXGA) 18/36-bit one/two channel LVDS interface
 - TV-Out : Support NTSC,PAL NTSC-EIA(Japan) formats . Support 640x480 resolutions
- **Resolution**: Single Channel of LVDS / 36-bit of TTL and 12-bit of TMDS; all resolutions are supported up to 1280x1024.

Environmental and Power

- **Power Requirements** : +5 V @ 2.18 A (typical);(Low Power Embedded Celeron 400MHz and 512MB SDRAM)
- **System Monitoring and Alarm** : CPU and System temperature, system voltage .
- **Board Dimensions** : 95mm x 114mm (3.7" x 4.5")
- **Operating Temperature** : 0 to 60°C (32 to 140°F)

Packing list

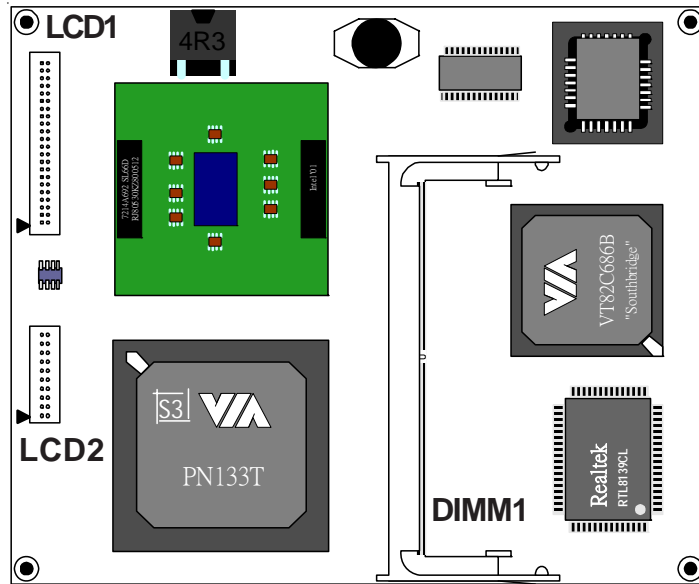
Before you begin installing your single board computer, please make sure that the following materials have been shipped:

- > 1 x EmETX-i602 EXT Embedded Intel Celeron(or PIII Tualatin) SBC
- > 1 x Quick Installation Guide
- > 1 x CD-ROM (for driver used)
- > 1 x Warranty Card

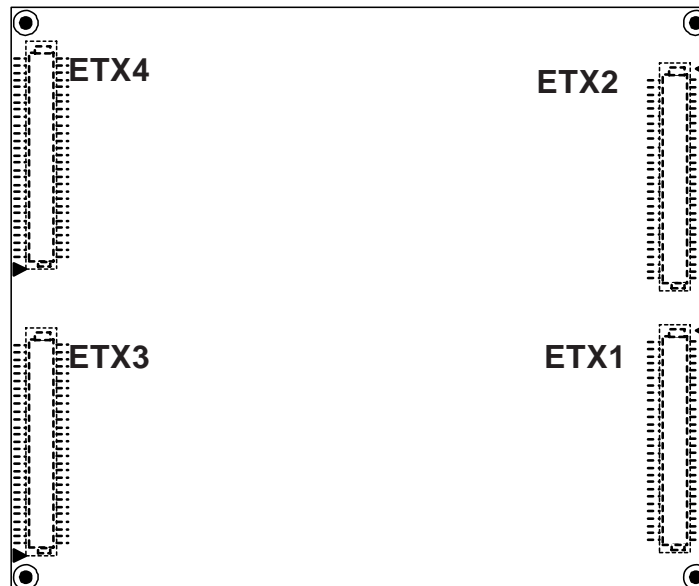
Ordering Codes

- | | |
|------------------------|---|
| EmETX-i602/C400 | ETX Embedded Intel Celeron ULV 400MHz Single Board Computer with one SODIMM socket up to 512 MB SDRAM, CRT SVGA, One Realtek 8139CL Fast Ethernet, AC97 3D Audio. |
| EmETX-i602/P800 | ETX Embedded Intel PIII Tualatin Low Power 800MHz Single Board Computer with one SODIMM socket up to 512 MB SDRAM, CRT SVGA, One Realtek 8139CL Fast Ethernet, AC97 3D Audio. |

Board Layout Top View (Front)



Board Layout Top View (Back)



Jumper/Connector Quick Reference

Connectors		
Lable	Function	Page
LCD1	LCD TTL Connector 1	9
LCD2	LCD TTL Connector 2	9
ETX1	PCI Bus, USB, Audio	10
ETX2	ISA Bus	10
ETX3	VGA,LCD,Video,COM1,COM2,LPT,IrDA,M/K	11
ETX4	IDE1,IDE2,Ethernet,Miscellaneous	11

Flat Panel VGA

LCD1

Type : Onboard 40-pin Box Header (Hirose DF-40DS-1.25C)

Pin	Description	Pin	Description
1	VCC5V	2	VCC5V
3	GND	4	GND
5	VCC3V	6	VCC3V
7	NC	8	GND
9	FPD0	10	FPD1
11	FPD2	12	FPD3
13	FPD4	14	FPD5
15	FPD6	16	FPD7
17	FPD8	18	FPD9
19	FPD10	20	FPD11
21	FPD12	22	FPD13
23	FPD14	24	FPD15
25	FPD16	26	FPD17
27	FPD18	28	FPD19
29	FPD20	30	FPD21
31	FPD22	32	FPD23
33	GND	34	GND
35	SHFCLK	36	HSYNC
37	M(DE)	38	VSYNC
39	ENABLK	40	ENAVEE

LCD2

Type : Onboard 20-pin Box Header (Hirose DF-20DS-1.25C)

Pin	Description	Pin	Description
1	GND	2	GND
3	FPD24	4	FPD25
5	FPD26	6	FPD27
7	FPD28	8	FPD29
9	FPD30	10	FPD31
11	FPD32	12	FPD33
13	FPD34	14	FPD35
15	GND	16	GND
17	NC	18	NC
19	NC	20	NC

ETX Connector

ETX1

ETX2

1	GND	GND	2	1	GND	GND	2
3	PCICLK3	PCICLK4	4	3	SD14	SD15	4
5	GND	GND	6	5	SD13	MASTER#	6
7	PCICLK1	PCICLK2	8	7	SD12	DREQ7	8
9	REQ#3	GNT#3	10	9	SD11	DACK#7	10
11	GNT#2	3V	12	11	SD10	DREQ6	12
13	REQ#2	GNT#1	14	13	SD9	DACK#6	14
15	REQ#1	3V	16	15	SD8	DREQ5	16
17	GNT#0	RESERVED	18	17	MEMW#	DACK#5	18
19	VCC	VCC	20	19	MEMR#	DREQ0	20
21	SERIRQ	REQ#0	22	21	LA17	DACK#0	22
23	AD0	3V	24	23	LA18	IRQ14	24
25	AD1	AD2	26	25	LA19	IRQ15	26
27	AD4	AD3	28	27	LA20	IRQ12	28
29	AD6	AD5	30	29	LA21	IRQ11	30
31	CBE#0	AD7	32	31	LA22	IRQ10	32
33	AD8	AD9	34	33	LA23	IO16#	34
35	GND	GND	36	35	GND	GND	36
37	AD10	AUXAL	38	37	SBHE#	M16#	38
39	AD11	MIC	40	39	SA0	OSC	40
41	AD12	AUXAR	42	41	SA1	BALE	42
43	AD13	ASVCC	44	43	SA2	TC	44
45	AD14	SNDL	46	45	SA3	DACK#2	46
47	AD15	ASGND	48	47	SA4	IRQ3	48
49	CBE#1	SNDR	50	49	SA5	IRQ4	50
51	VCC	VCC	52	51	VCC	VCC	52
53	PAR	SERR#	54	53	SA6	IRQ5	54
55	GPERR#	RESERVED	56	55	SA7	IRQ6	56
57	PME#	USB2-	58	57	SA8	IRQ7	58
59	LOCK#	DEVSEL#	60	59	SA9	IRQ7	58
61	TRDY#	USB3-	62	61	SA10	SYSCLK	60
63	IRDY#	STOP#	64	63	SA11	REFSH#	62
65	FRAME#	USB2+	66	65	SA12	DREQ1	64
67	GND	GND	68	67	SA13	DACK#1	66
69	AD16	CBE#2	70	69	GND	GND	68
71	AD17	USB3+	72	71	SA13	DREQ3	70
73	AD19	AD18	74	73	SA14	DACK#3	72
75	AD20	USB0-	76	75	SA15	IOR#	74
77	AD22	AD21	78	77	SA16	IOW#	76
79	AD23	USB1-	80	79	SA18	SA17	78
81	AD24	CBE#3	82	81	SA19	SMEMR#	80
83	VCC	VCC	84	83	IOCHRDY	AEN	82
85	AD25	AD26	86	85	VCC	VCC	84
87	AD28	USB0+	88	87	SD0	SMEMW#	86
89	AD27	AD29	90	89	SD2	SD1	88
91	AD30	USB1+	92	91	SD3	NOWS#	90
93	PCIRST#	AD31	94	93	DREQ2	SD4	92
95	INTC#	INTD#	96	95	SD5	IRQ9	94
97	INTA#	INTB#	98	97	SD6	SD7	96
99	GND	GND	100	99	IOCHK#	RSTDRV	98
					GND	GND	100

ETX Connector

ETX3

ETX4

1	GND	GND	2	1	GND	GND	2
3	R	B	4	3	5V_SB	PWGIN	4
5	HSY	G	6	5	PS_ON	SPEAKER	6
7	VSX	DDCK	8	7	PWRBTN#	BATT	8
9	DETECT#/N.C	DDDA	10	9	N.C	LILED	10
11	TX2CLK#	TX2D3#	12	11	WDTOUT	ACTLED	12
13	TX2CLK+	TX2D3+	14	13	ROMKBCS#	SPEEDLED	14
15	GND	GND	16	15	N.C	12CLK	16
17	TX2D1+	TX2D2+	18	17	VCC	VCC	18
19	TX2D1#	TX2D2#	20	19	OVCR#	GPCS#	20
21	GND	GND	22	21	EXTSMI#	12DAT	22
23	TX1D3#	TX2D0+	24	23	SMBCLK	SMBDAT	24
25	TX1D3+	TX2D0#	26	25	SIDE_CS3#	CPU_FAN	26
27	GND	GND	28	27	SIDE_CS1#	DASP#	28
29	TX1D2#	TX1CLK+	30	29	SIDE_A2	PIDE_CS3#	30
31	TX1D2+	TX1CLK#	32	31	SIDE_A0	PIDE_CS1#	32
33	GND	GND	34	33	GND	GND	34
35	TX1D0#	TX1D1+	36	35	PD33/66SEL	PIDE_A2	36
37	TX1D0+	TX1D1#	38	37	SIDE_A1	PIDE_A0	38
39	VCC	VCC	40	39	SIDE_INTRQ	PIDE_A1	40
41	N.C	N.C	42	41	SD33/66SEL	N.C	42
43	N.C	BLON#	44	43	SIDE_AK#	PIDE_INTRQ	44
45	BIASON	DIGON	46	45	SIDE_RDY	PIDE_AK#	46
47	COMP	Y	48	47	SIDE_IOR#	PIDE_RDY	48
49	SYNC	C	50	49	VCC	VCC	50
51	N.C	N.C	52	51	SIDE_IOW#	PIDE_IOR#	52
53	VCC	GND	54	53	SIDE_DRQ	PIDE_IOW#	54
55	STB#	AFD#	56	55	SIDE_D15	PIDE_DRQ	56
57	N.C	PD7	58	57	SIDE_D0	PIDE_D15	58
59	IRRX	ERR#	60	59	SIDE_D14	PIDE_D0	60
61	IRTX	PD6	62	61	SIDE_D1	PIDE_D14	62
63	RXD2	INIT#	64	63	SIDE_D13	PIDE_D1	64
65	GND	GND	66	65	GND	GND	66
67	RTS#2	PD5	68	67	SIDE_D2	PIDE_D13	68
69	DTR#2	SLIN#	70	69	SIDE_12	PIDE_D2	70
71	DCD#2	PD4	72	71	SIDE_D3	PIDE_D12	72
73	DSR#2	PD3	74	73	SIDE_D11	PIDE_D3	74
75	CTS#2	PD2	76	75	SIDE_D4	PIDE_D11	76
77	TXD#2	PD1	78	77	SIDE_D10	PIDE_D4	78
79	RI2#	PD0	80	79	SIDE_D5	PIDE_D10	80
81	VCC	VCC	82	81	VCC	VCC	82
83	RXD1	ACK#	84	83	SIDE_D9	PIDE_D5	84
85	RTS#1	BUSY#	86	85	SIDE_D6	PIDE_D9	86
87	DTR#1	PE	88	87	SIDE_D8	PIDE_D6	88
89	DCD#1	SLCT#	90	89	RING IN	WOL	90
91	DSR#1	MSCLK	92	91	RXD#	PIDE_D8	92
93	CTS#1	MSDAT	94	93	RXD	SIDE_D7	94
95	TXD#1	KBCLK	96	95	TXD#	PIDE_D7	96
97	RI1#	KBDAT	98	97	TXD	HDRST#	98
99	GND	GND	100	99	GND	GND	100