



**User's Manual**  
**COM Express Baseboard**  
Version 1.0 May 30, 2006

1007729



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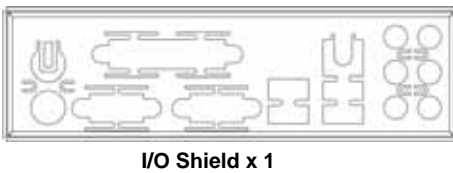
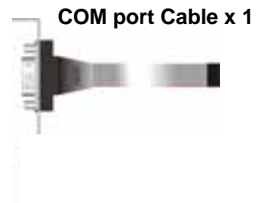
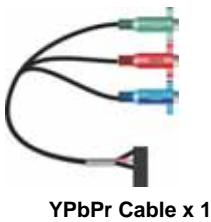
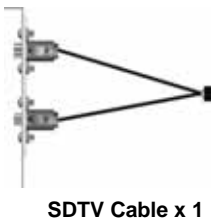
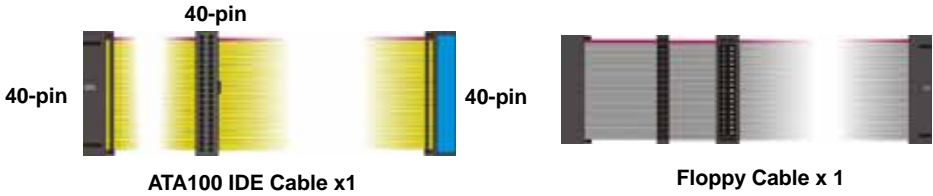
## Packing List:

Please check the package content before you starting using the board.

### Hardware:

1007729 baseboard x 1

### Cable Kit:



### Printed Matters:

User's Manual x 1

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## Chapter 1 <Introduction>

### 1.1 <Product Overview>

**1007729** is the COM express baseboard provide REALTEK High Definition Audio, Serial ATA, PCI Express x16/x1 interface, PCI slot , Mini PCI socket and ISA Slot .

#### **All in One multimedia solution**

The baseboard provides 18/24-bit dual channel LVDS connector, HDTV and 7.1 channels High Definition Audio, to meet the very requirement of the multimedia application.

#### **Flexible Extension Interface**

The baseboard provides one PCI-Express x16 slot for graphics card , it also provide four PCI-Express x1 slots. The baseboard provide two PCI slot, one Mini-PCI socket and one ISA slot.

## 1.2 <Product Specification>

### General Specification

Form Factor	COM Express type II Baseboard
Watchdog Timer	Programmable watchdog timer with 1 ~ 255 sec./min. of timeout value
Real Time Clock	RTC with lithium battery
Enhanced IDE	Provide UltraDMA100 IDE interface supports up to 2 ATAPI devices One 40-pin IDE port onboard
Serial ATA	Provide four serial ATA connectors

### Multi-I/O Port

Chipset	Winbond® W83627THG controller
Serial Port	One external and one internal RS-232 serial ports
USB Port	Eight Hi-Speed USB 2.0 ports with 480Mbps of transfer rate
Parallel Port	One external Parallel port
Floppy Port	One standard Floppy port
IrDA Port	One IrDA compliant Infrared interface supports SIR
K/B & Mouse	External PS/2 keyboard and mouse ports on rear I/O panel
GPIO	One 12-pin Digital I/O connector with 8-bit programmable I/O interface
Fan	Two fan connectors

### VGA Display Interface

Connector	External DB15 female connector on rear I/O panel Onboard 40-in LVDS connector Onboard 8-pin TV-out connector
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## Ethernet Interface

Type	10/100 Base-T auto-switching Fast Ethernet Full duplex, IEEE802.3U compliant
Connector	One External RJ45 connectors with LED on rear I/O panel

## Audio Interface

Chip	Realtek® ALC880 codec Intel High Definition Audio compliance
Interface	7.1 channels sound output
Connector	External Audio phone jack for Line-out, Line-in, MIC-in, Surround, Center and Backsurround Onboard audio connector with pin header (built-in amplifier for speaker out) Onboard CD-IN and S/PDIF connector

## Expansive Interface

PCI-Express	One x16 PCI-Express slot Four x1 PCI-Express slots Up to 8GB/s of transfer bandwidth Power supply: +3.3V, +12V
PCI	One Mini-PCI socket for <b>TYPE III</b> (32-bit, 33MHz) Power supply: +3.3V, +5V

## Power and Environment

Power Requirement	Standard ATX Power connector
Dimension	190 (L) x 305 (H) mm
Temperature	Operating within 0 ~ 60°C (32 ~ 140°F) Storage within -20 ~ 85°C (-4 ~ 185°F)

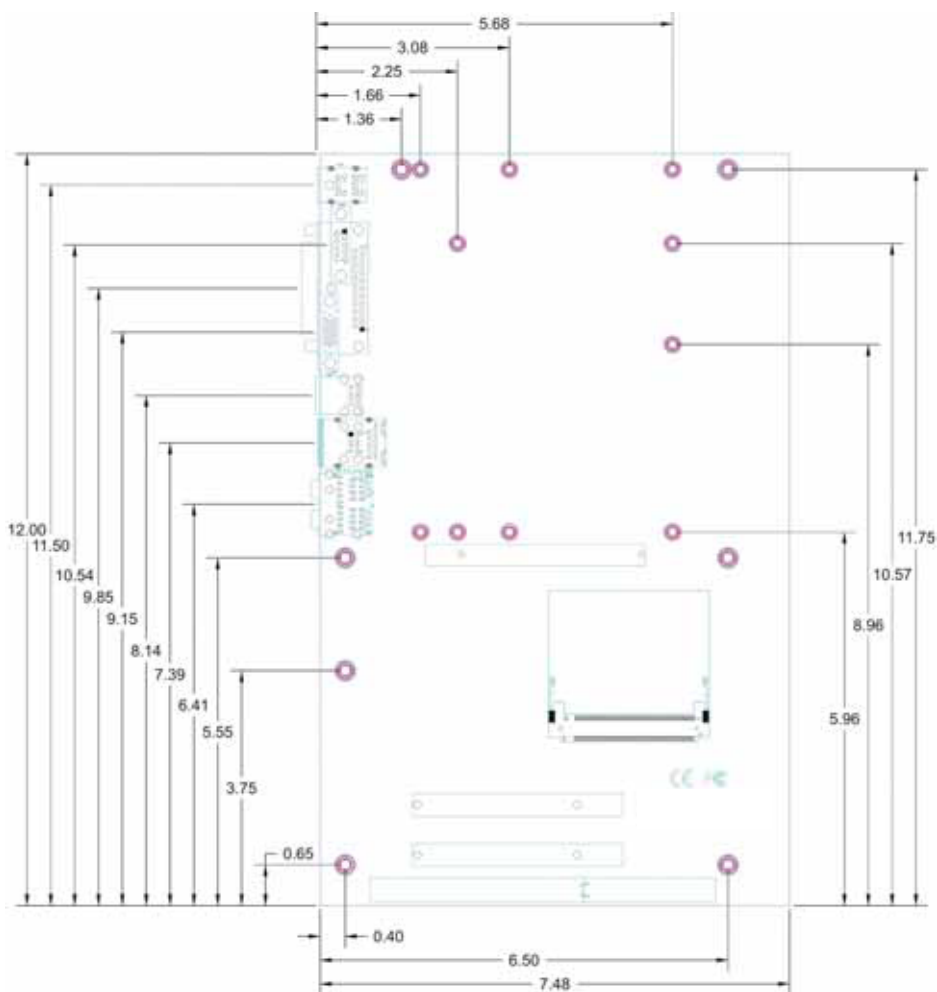
## Ordering Code

<b>1007729</b>	Com Express baseboard
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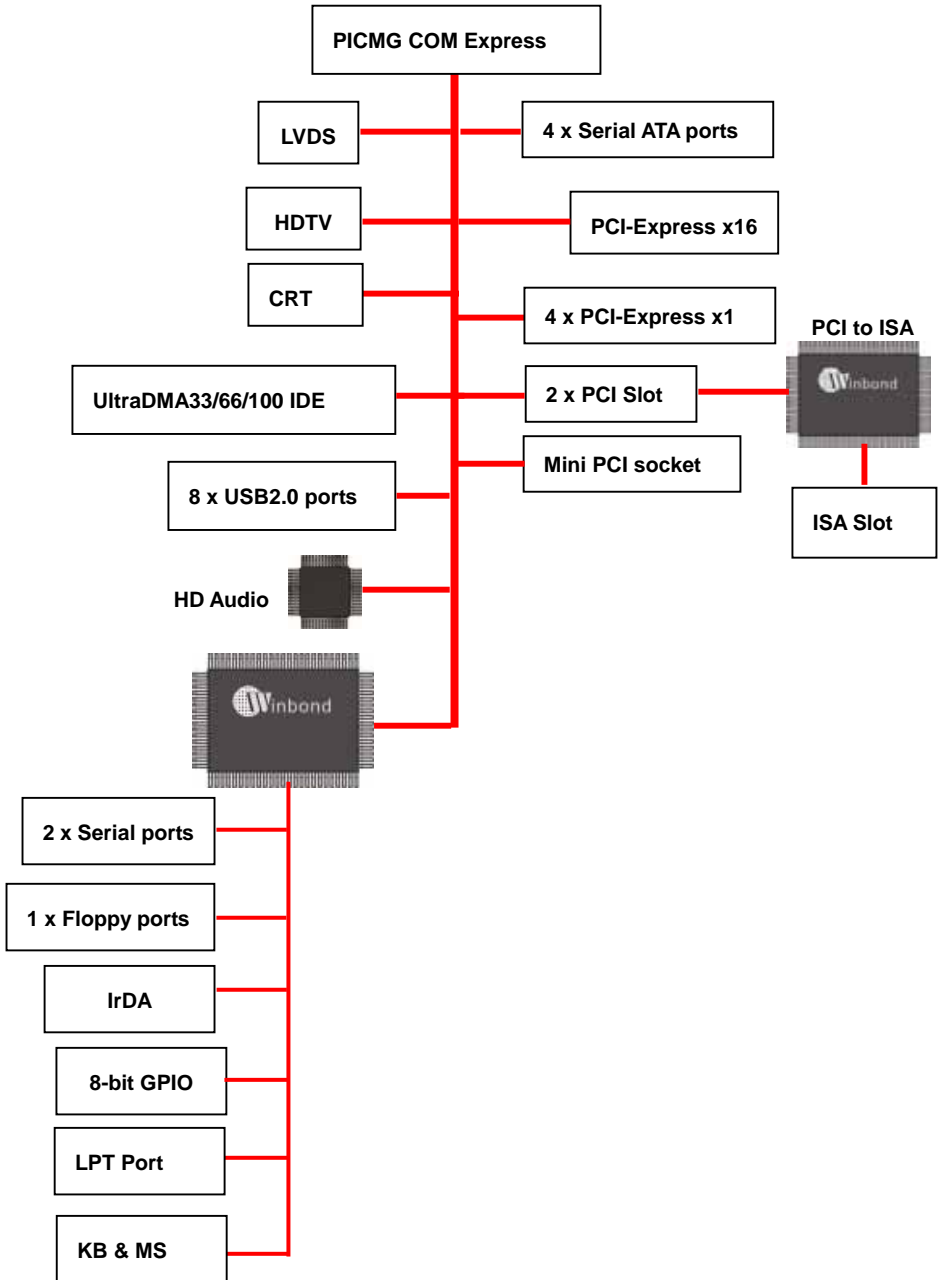
The specifications may be different as the actual production.

For further product information please visit the website at [www.globalamericaninc.com](http://www.globalamericaninc.com)

## 1.3 &lt;Mechanical Drawing&gt;



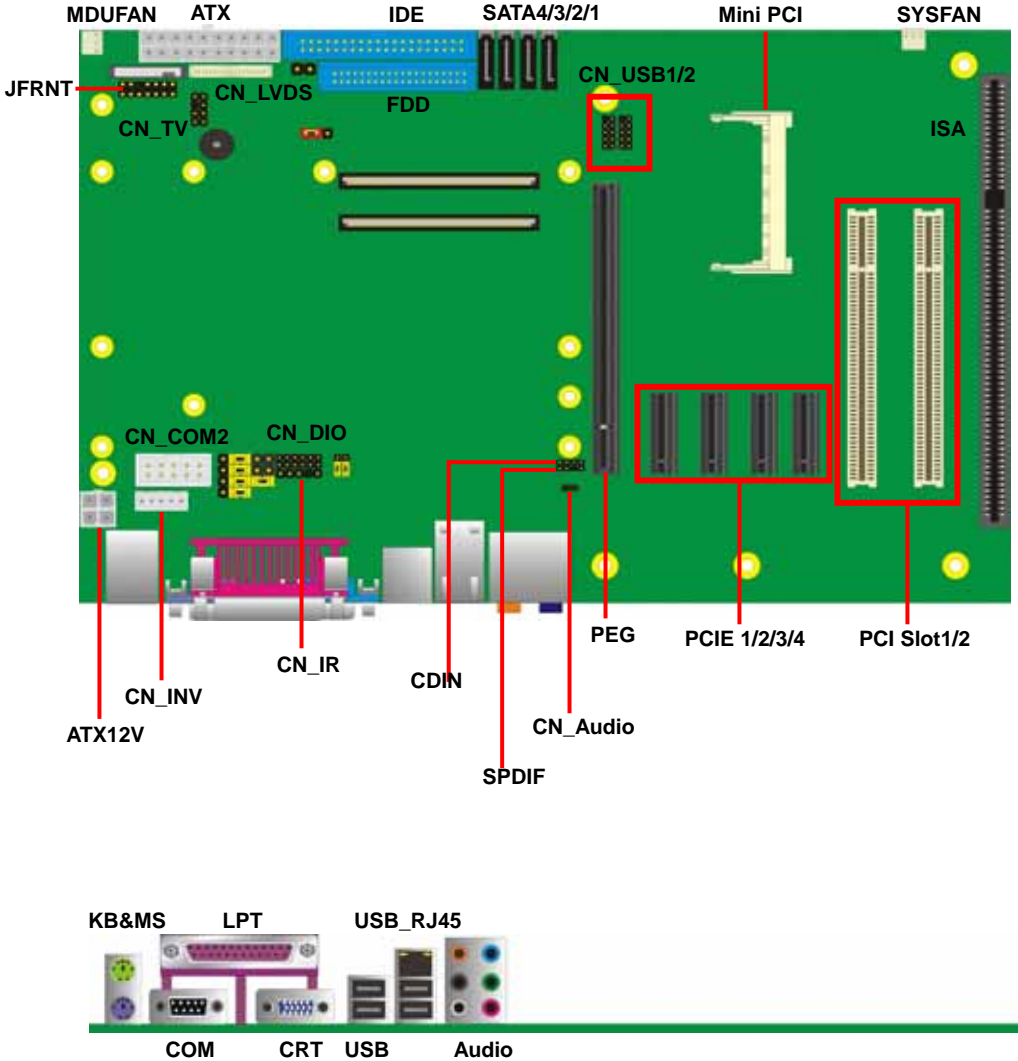
### 1.4 <Block Diagram>



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# Chapter 2 <Hardware Setup>

## 2.1 <Connector Location>



## 2.2 <Jumper Location & Reference>

Jumper	Function
JVLCD	Panel Voltage Setting
JCSEL1	Setting RS232/422/485
JCSEL2	Setting RS232/422/485
JDOM	IDE Pin-20 voltage setting
JIOC	Set super I/O clock
JIOA	Set super I/O address

Jumper: **JIOC**

Type: onboard 3-pin header



JIOC	Clock
1-2	48MHz (default)
2-3	24MHz

Default setting

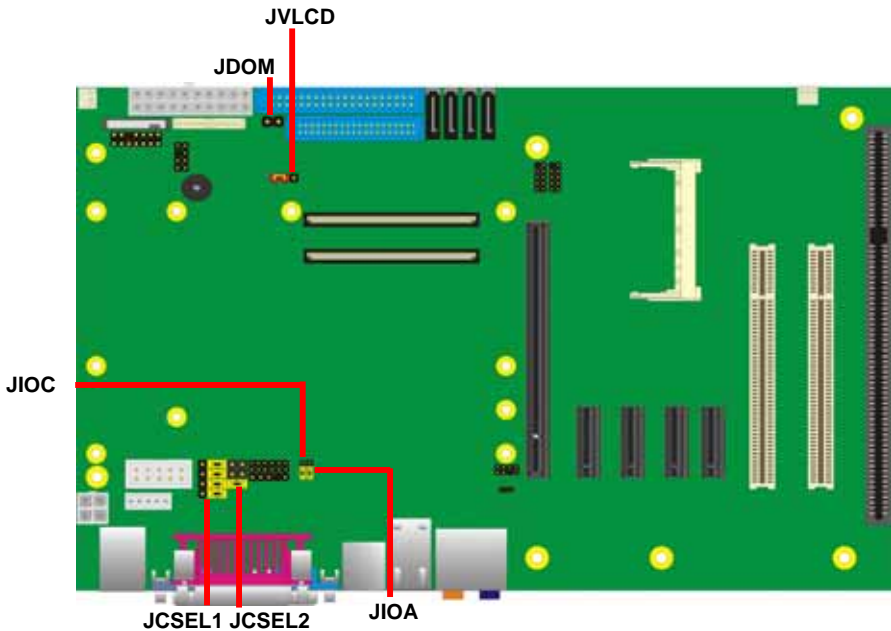
Jumper: **JDOA**

Type: onboard 3-pin header



JIOA	Address
1-2	4Eh (default)
2-3	2Eh

Default setting



## 2.3 <Connector Reference>

### 2.3.1 <Internal Connectors>

Connector	Function	Remark
IDE	40-pin IDE connector	Standard
FDD	26-pin floppy connector	Standard
SATA1/2/3/4	7-pin Serial ATA connector	Standard
ATX12V	4-pin power input connector	Standard
ATX	20-pin ATX power input connector	Standard
CN_AUDIO	5 x 2-pin audio connector	Standard
CDIN	4-pin CD-ROM audio input connector	Standard
CN_DIO	6 x 2-pin digital I/O connector	Standard
CN_USB1/2	Two 5 x 2-pin USB connector	Standard
MDUFAN	3-pin module cooler fan connector	Standard
SYSFAN	3-pin system cooler fan connector	Standard
CN_LVDS	20 x 2-pin LVDS connector	Standard
CN_INV	5-pin LCD inverter connector	Standard
CN_IR	5-pin IrDA connector	Standard
CN_COM2	5 x 2-pin COM2 connector	Standard
CN_TV	4 x 2-pin TV-out connector	Standard
JFRNT	14-pin front panel switch/indicator connector	Standard
MINIPCI	Mini-PCI socket	Standard
PEG	PCI Express x16 slot	Standard
PCIE1/2/3/4	Four PCI Express x1 slots	Standard
PCI 1/2	Two PCI slot	Standard
ISA	One ISA slot	Standard

### 2.3.2 <External Connectors>

Connector	Function	Remark
COM1	Serial port connector	Standard
USB_RJ45	Dual USB and RJ45 LAN connector	Standard
USB	Dual USB connector	Standard
VGA	DB15 analog VGA connector	Standard
KB	PS/2 keyboard connector	Standard
MS	PS/2 mouse connector	Standard
AUDIO	Audio connectors	Standard

## 2.6 <Enhanced IDE Interface>

The baseboard has one UltraDMA33/66/100 IDE interface to support up to 2 ATAPI devices, with jumper **JDOM** for Disk on module.

Jumper: **JDOM**

Type: onboard 2-pin header

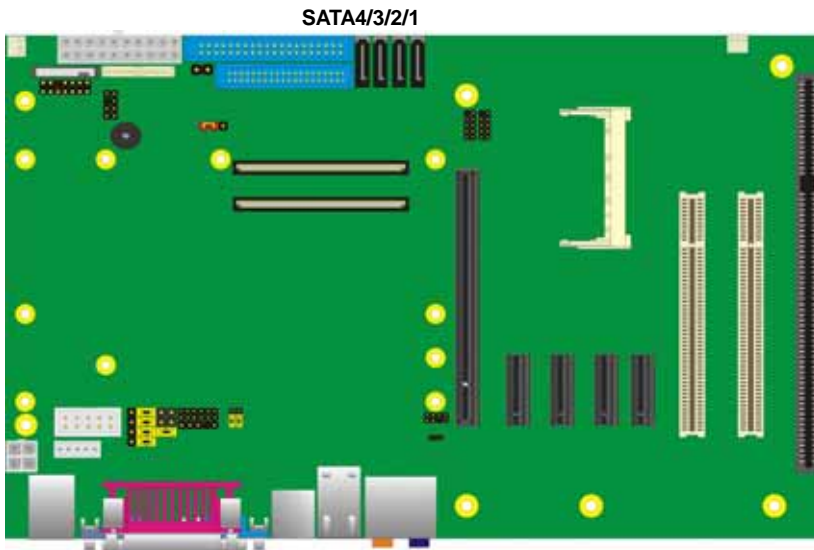
JDOM	Mode
1-2	Short
1-2	Open (default)

Default setting

## 2.7 <Serial ATA Interface>

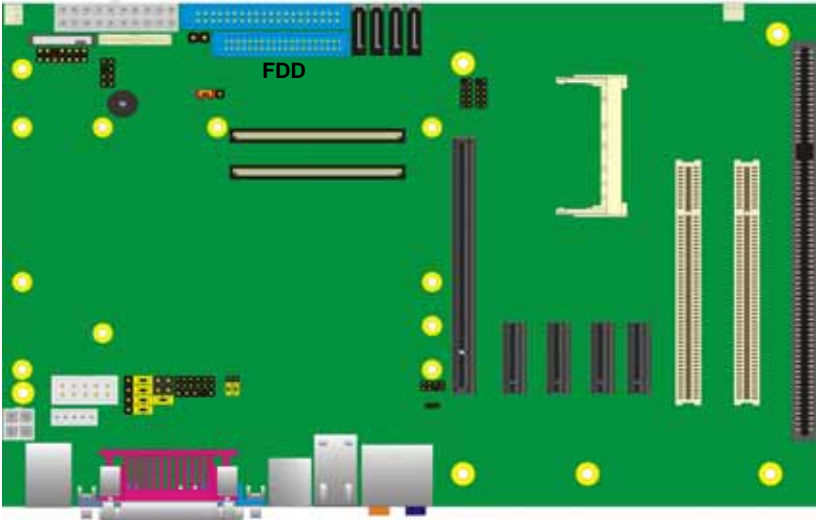
The Baseboard provides four Serial ATA interfaces with up to 150MB/s of transfer rate.

**Notice : CES-470 only provide SATA1&SATA3,SATA2&SATA4 no function**



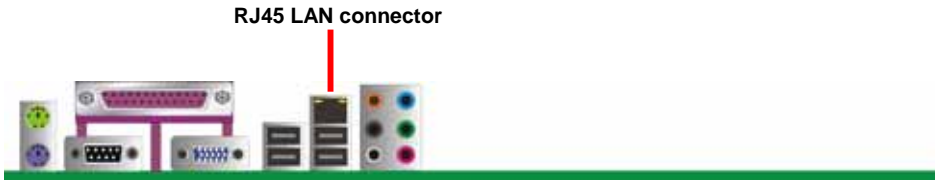
## 2.8 <Floppy Port>

The board provides standard floppy port.



## 2.9 <Ethernet Interface>

The baseboard provide one RJ45 connector of 10/100Base-T, with IEEE802.3 compliance .



## 2.10 <Onboard Display Interface>

The baseboard provides one DB15 connector on rear external I/O port, and one 40-pin LVDS interface with 5-pin LCD backlight inverter connector, TV-out.

### 2.10.1 <Analog Display>

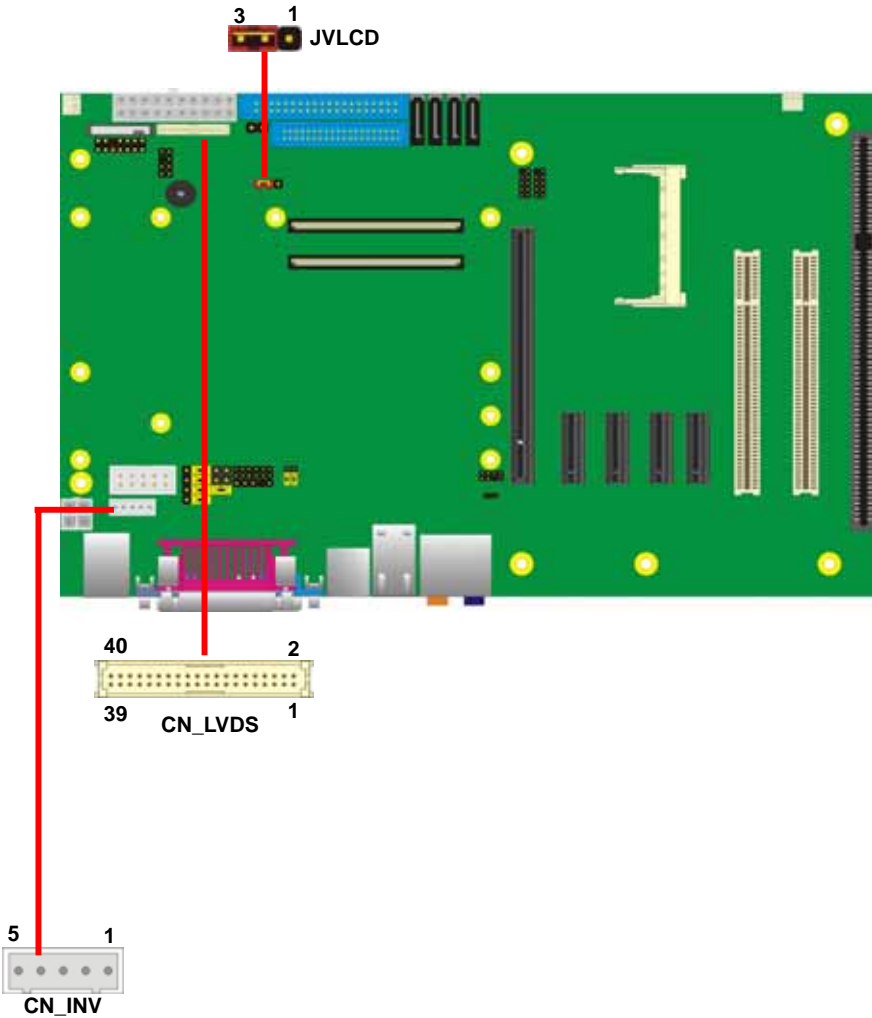
Please connect your CRT or LCD monitor with DB15 male connector to the onboard DB15 female connector on rear I/O port.



VGA

### 2.10.2 <Digital Display>

The baseboard provides one 40-pin LVDS connector for 18/24-bit single/dual channel panels, with one LCD backlight inverter connector and one jumper for panel voltage setting.



Connector: **CN\_INV**

Type: 5-pin LVDS Power Header

Pin	Description
1	+12V
2	GND
3	GND
4	GND
5	ENABKL

Connector: **JVLCD**

Type: 3-pin Power select Header

Pin	Description
1	VCC(5V)
2	LCDVCC
3	VCC3(3.3)

Connector: **CN\_LVDS**

Type: onboard 40-pin connector for LVDS connector

Connector model: **HIROSE DF13-40DP-1.25V**

Pin	Signal	Pin	Signal
2	LCDVCC	1	LCDVCC
4	GND	3	GND
6	ATX0-	5	BTX0-
8	ATX0+	7	BTX0+
10	GND	9	GND
12	ATX1-	11	BTX1-
14	ATX1+	13	BTX1+
16	GND	15	GND
18	ATX2-	17	BTX2-
20	ATX2+	19	BTX2+
22	GND	21	GND
24	ACLK-	23	BTX3-
26	ACLK+	25	BTX3+
28	GND	27	GND
30	ATX3-	29	BCLK-
32	ATX3+	31	BCLK+
34	GND	33	GND
36	LVDDCLK	35	N/C
38	LVDDDAT	37	N/C
40	N/C	39	N/C

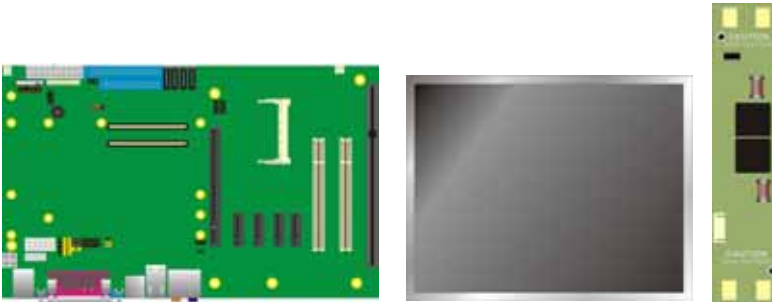
To setup the LCD, you need the component below:

1. A panel with LVDS interfaces.
2. An inverter for panel's backlight power.
3. A LCD cable and an inverter cable.

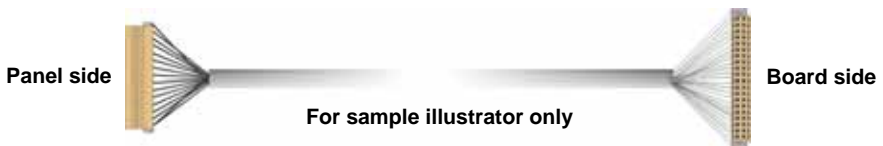
For the cables, please follow the pin assignment of the connector to make a cable, because every panel has its own pin assignment, so we do not provide a standard cable; please find a local cable manufacture to make cables.

### LCD Installation Guide:

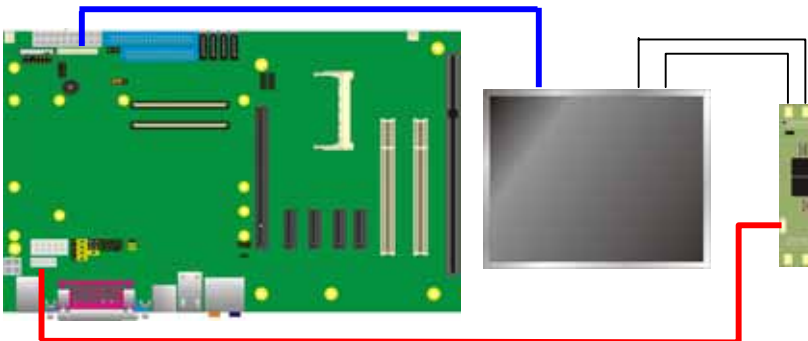
1. Preparing the **1007729, LCD panel** and the **backlight inverter**.



2. Please check the datasheet of the panel to see the voltage of the panel, and set the jumper **JVLCD** to +5V or +3.3V.
3. You would need a LVDS type cable.



4. To connect all of the devices well.



### 2.10.3 <HDTV Interface>

The baseboard provides one HDTV interface NTSC/PAL supported, for three output types with Composite, S-Video and Component (YPbPr).

Connector: **CN\_TV**

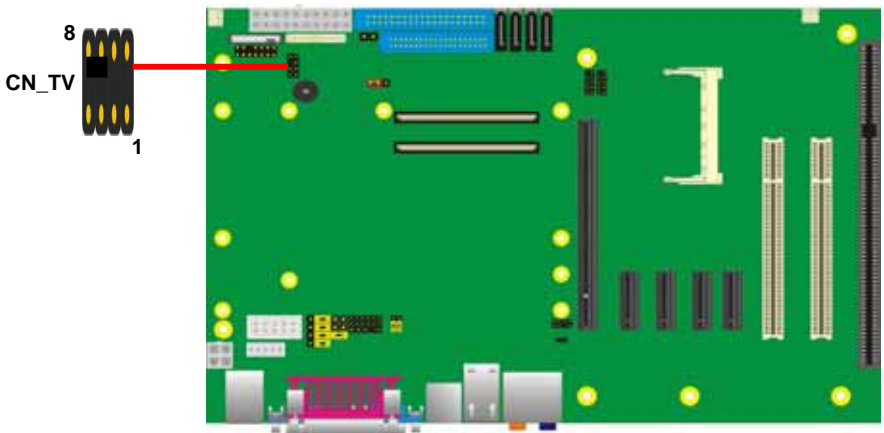
Connector type: 8-pin header TV-out connector (pitch = 2.54mm)

Pin Number	Assignment	Pin Number	Assignment
1	GND	2	S-Video/Y
3	S-video/Pr	4	GND
5	GND	6	GND
7	Composite/Pb	8	GND

*Notice1: This connector is for both S-Video/Composite and YPbPr outputs; please use attached two cables in the package for SDTV or HDTV devices.*

*Notice2: S-Video and Composite can not be used at the same time.*

*This function only for CES-470.*



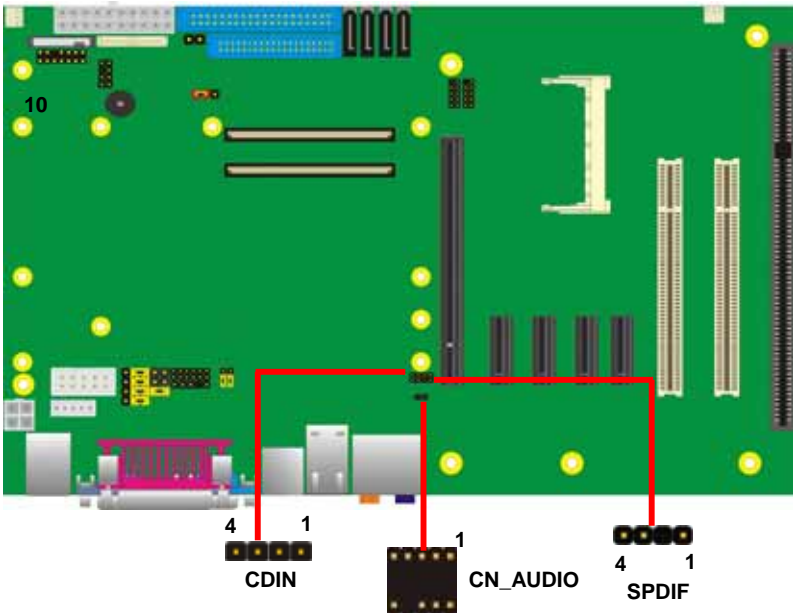
## 2.11 <Integrated Audio Interface>

The baseboard integrates onboard audio interface with REALTEK ALC880 codec, with Intel next generation of audio standard as High Definition Audio, it offers more vivid sound and other advantages than former AC97 audio compliance.

The main specifications of ALC880 are:

- **High-performance DACs with 100dB S/N ratio**
- **8 DAC channels support 16/20/24-bit PCM format for 7.1 audio solution**
- **16/20/24-bit S/PDIF-OUT supports 44.1K/48K/96kHz sample rate**
- **Compatible with AC'97**
- **Meets Microsoft WHQL/WLP 2.0 audio requirements**

The board provides 7.1 channels audio phone jacks on rear I/O port, and amplified speaker out and Line-in/MIC-in ports for front I/O panel through optional cable.



**Connector: CN\_AUDIO**

Type: 10-pin (2 x 5) 1.27mm x 2.54mm-pitch header

Pin	Description	Pin	Description
1	MIC_L	2	Ground
3	MIC_R	4	Ground
5	Speaker_R	6	MIC Detect
7	SENSE	8	N/C
9	Speaker_L	10	Speaker Detect

**Connector: CDIN**

Type: 4-pin header (pitch = 2.54mm)

Pin	Description
1	CD – Left
2	Ground
3	Ground
4	CD – Right

**Connector: SPDIF**

Type: 4-pin header (pitch = 2.54mm)

Pin	Description
1	+5V
2	N/C
3	SPDIFOUT
4	GND

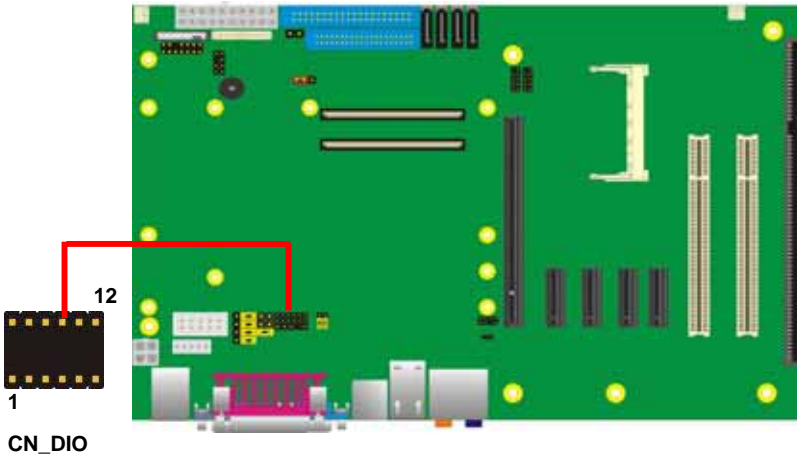
## 2.12 <GPIO Interface>

The baseboard provide a programmable 8-bit digital I/O interface; you can use this general purpose I/O port for system control like POS or KIOSK.

Connector: **CN\_DIO**

Type: 12-pin (6 x 2) 2.0mm x 2.0mm-pitch header

Pin	Description	Pin	Description
1	Ground	2	Ground
3	GP10	4	GP14
5	GP11	6	GP15
7	GP12	8	GP16
9	GP13	10	GP17
11	VCC	12	+12V



## 2.13 <Power Supply>

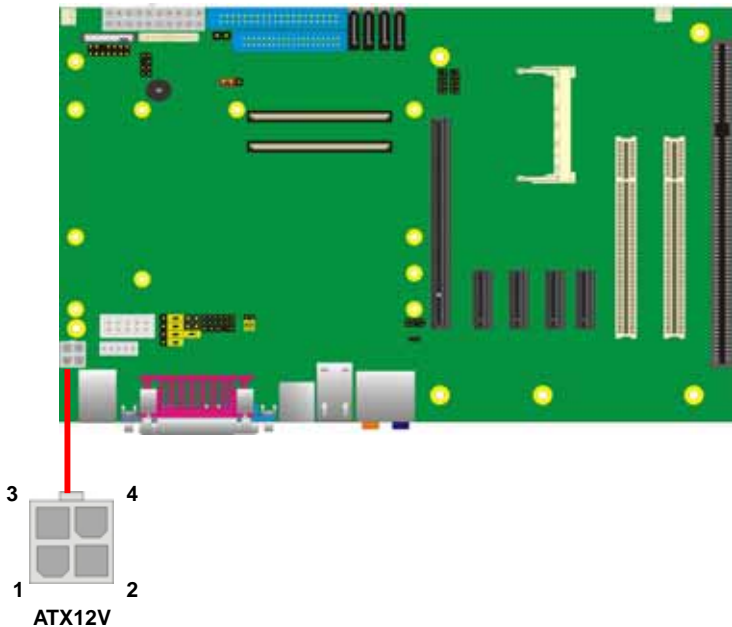
### 2.13.1 <Power Input>

The baseboard requires board 4-pin ATX2.0 12V connector and standard ATX Power input.

Connector: **ATX12V**

Type: 4-pin standard ATX2.0 +12V power connector

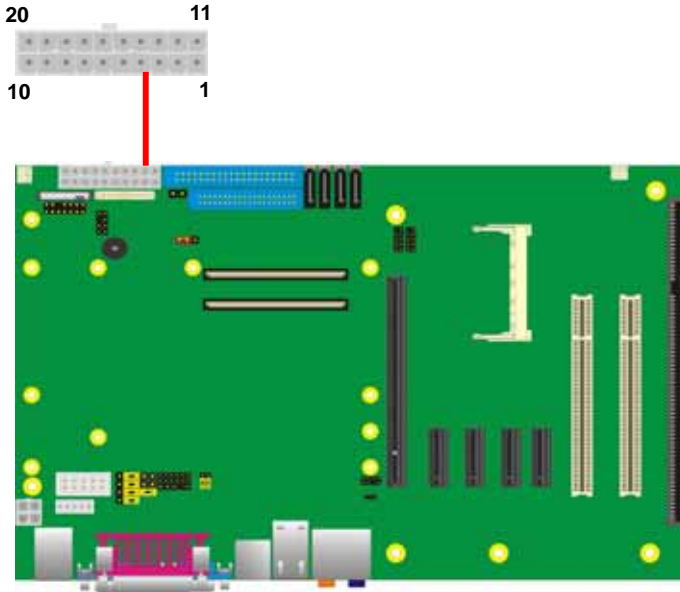
Pin	Description	Pin	Description
1	Ground	2	Ground
3	+12V	4	+12V



Connector: **ATX**

Type: 20-pin ATX power connector

PIN assignment			
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V



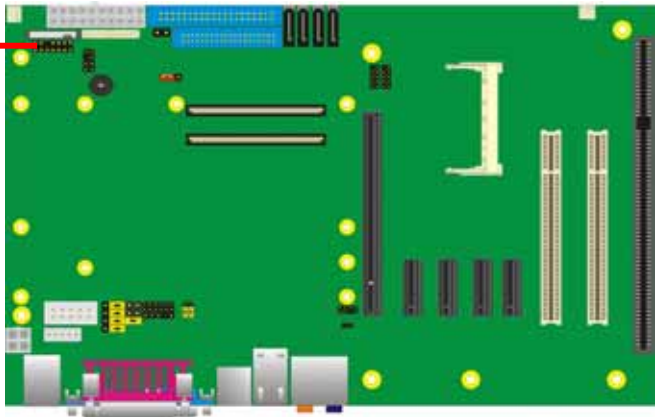
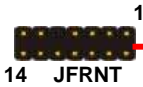
## 2.14 <Switch and Indicator>

The **JFRNT** provides front control panel of the board, such as power button, reset and beeper, etc. Please check well before you connecting the cables on the chassis.

Connector: **JFRNT**

Type: onboard 14-pin (2 x 7) 2.54-pitch header

Function	Signal	PIN		Signal	Function
IDE LED	HDLED+	1	2	PWRLED+	Power LED
	HDLED-	3	4	N/C	
Reset	Reset+	5	6	PWRLED-	Speaker
	Reset-	7	8	SPK+	
N/C		9	10	N/C	
Power	PWRBT-	11	12	N/C	
Button	PWRBT+	13	14	SPK-	



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## Appendix A <I/O Port Pin Assignment>

### A.1 <IDE Port>

Connector: IDE

Type: 40-pin (20 x 2) box header

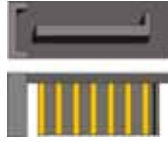


Pin	Description	Pin	Description
1	Reset	2	Ground
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	Ground	20	N/C
21	REQ	22	Ground
23	-IOW	24	Ground
25	-IOR	26	Ground
27	IORDY	28	Ground
29	DACK	30	Ground
31	IDEIRQ	32	IDE32
33	A1	34	P66DET
35	A0	36	A2
37	-CS1	38	-CS3
39	-HD LED1	40	Ground

## A.2 <Serial ATA Port>

Connector: **SATA1/2/3/4**

Type: 7-pin wafer connector



1	2	3	4	5	6	7
GND	RSATA_TXP1	RSATA_TXN1	GND	RSATA_RXN1	RSATA_RXP1	GND

## A.3 <Floppy Port>

Connector: **FDD**

Type: 34-pin connector



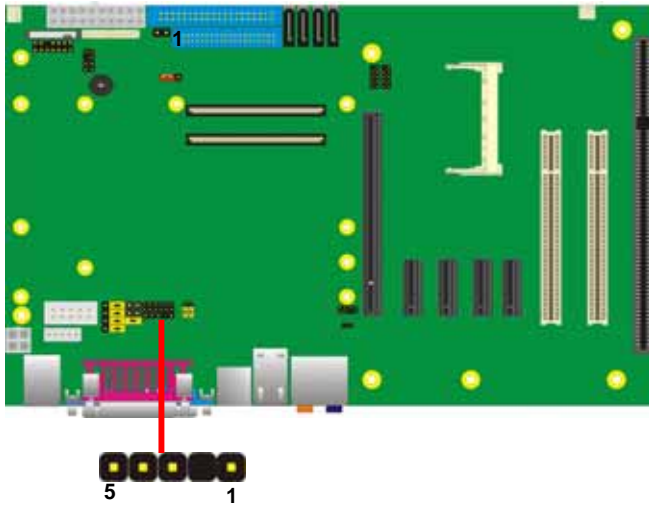
Pin	Description	Pin	Description
1	GND	2	FD DRV DEN
3	GND	4	N/C
5	GND	6	N/C
7	GND	8	FD_INDEX-
9	GND	10	FD_MOA-
11	GND	12	N/C
13	GND	14	FD_DSA-
15	GND	16	N/C
17	GND	18	FD_DIR-
19	GND	20	FD_STEP-
21	GND	22	FD_WD-
23	GND	24	FD_WE-
25	GND	26	FD_TRAK-
27	GND	28	FD_WP-
29	GND	30	FD_RDATA-
31	GND	32	FD_HEAD-
33	GND	34	FD_DSKCHG-

### A.4 <IrDA Port>

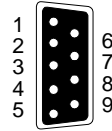
Connector: CN\_IR

Type: 5-pin header for SIR Ports

Pin	Description
1	VCC
2	N/C
3	IRRX
4	Ground
5	IRTX



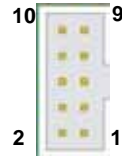
## A.5 <Serial Port>



Connector: **COM1**

Type: 9-pin D-sub male connector on rear I/O

Pin	Description	Pin	Description
1	DCD	6	DSR
2	SIN	7	RTS
3	SO	8	CTS
4	DTR	9	RI
5	Ground		



Connector: **COM2**

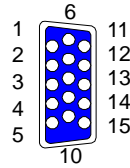
Type: 10-pin D-sub male connector on bracket

Pin	Description	Pin	Description
1	DCD- /485-	2	SIN- /485+
3	SO- /422+	4	DTR- /422-
5	Ground	6	DSR-
7	RTS-	8	CTS-
9	RI	10	N/C

### A.6 <VGA Port>

Connector: **VGA**

Type: 15-pin D-sub female connector on rear I/O



Pin	Description	Pin	Description	Pin	Description
1	RED	6	Ground	11	N/C
2	GREEN	7	Ground	12	VCC
3	BLUE	8	Ground	13	HSYNC
4	N/C	9	N/C	14	VSYNC
5	Ground	10	Ground	15	5VCLK

### A.7 <LAN Port>

Connector: **RJ45**

Type: RJ45 connector with LED on rear I/O



Pin	1	2	3	4	5
Description	TRD0+	TRD0-	TRD1+	TRD1-	NC

Pin	6	7	8	9	10
Description	NC	TRD2+	TRD2-	TRD3+	TRD3-

### A.8 < USB Interface >

Connector: **CN\_USB**

Type: 10-pin (5 x 2) header for dual USB Ports



Pin	Description	Pin	Description
1	VCC	2	VCC
3	Data0-	4	Data1-
5	Data0+	6	Data1+
7	Ground	8	Ground
9	Ground	10	NC

## A.9 < LPT Port >

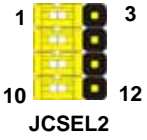
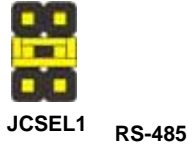
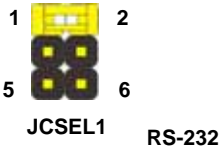
Connector : LPT



Type :26-Pin D-Sub female Connector on rear I/O

Pin	Description	Pin	Description
1	-PSTB	2	PRO0
3	PRO1	4	PRO2
5	PRO3	6	PRO4
7	PRO5	8	PRO6
9	PRO7	10	ACK-
11	BUSY	12	PE
13	SLCT	14	AFD-
15	ERR-	16	INT-
17	SLIN-	18	Ground
19	Ground	20	I/O Ground
21	Ground	22	Ground
23	Ground	24	Ground
25	Ground	26	N/C

# Appendix B <How to choose RS-422 & RS-485>



Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support you for your products, projects and business.

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