

Product Spec

Motherboard

RB-M212 V1.1

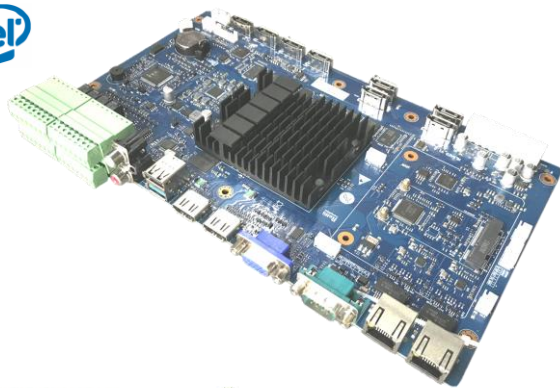
Prepared by : wangwei

Date: 2020/10/11

Approved by: PMZ

Date: 2020/10/11

Revision History			
Revision	Date	Description	Author
V1.0	2019/10/11	First release	Wangwei
V1.1	2020/09/20	DVT	Wangwei



Features

- *Intel Apollo Platform, J3455 CPU, 1.5GHz, 4* Cores, 4* Threads
- *Supports 2 independent Display, support android
- *Supports 2 X 10/100/1000M LAN adapter
- *Support 2 X USB2.0, 1 X USB3.0
- *Support 2 X COMs, 8 X SATAIII, 1 X AI
- *Support HD Audio, 1 X Audio out, 1X Audio in
- *Support ATX PSU
- *Support 4GB Memory down

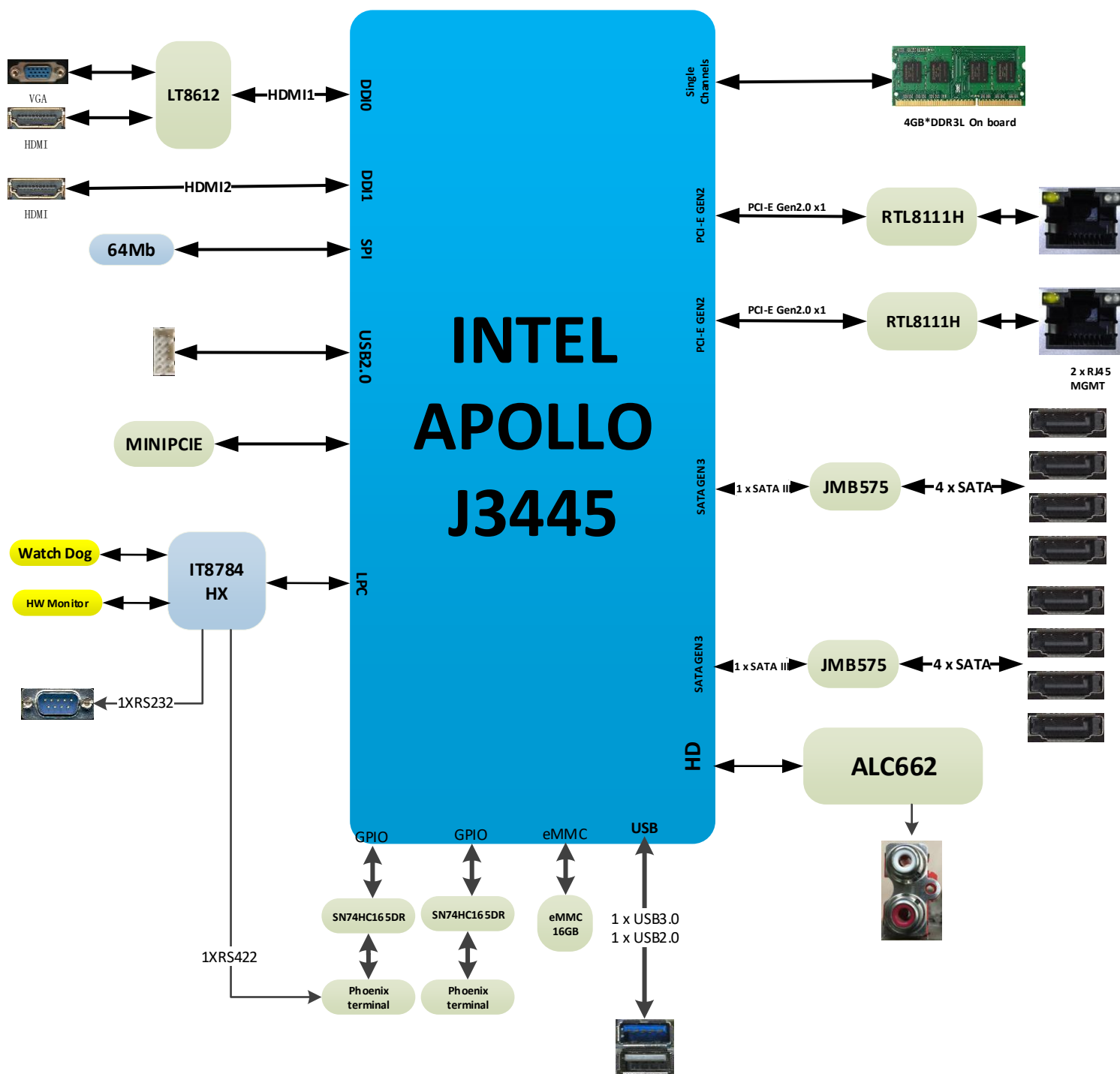
Application Industry

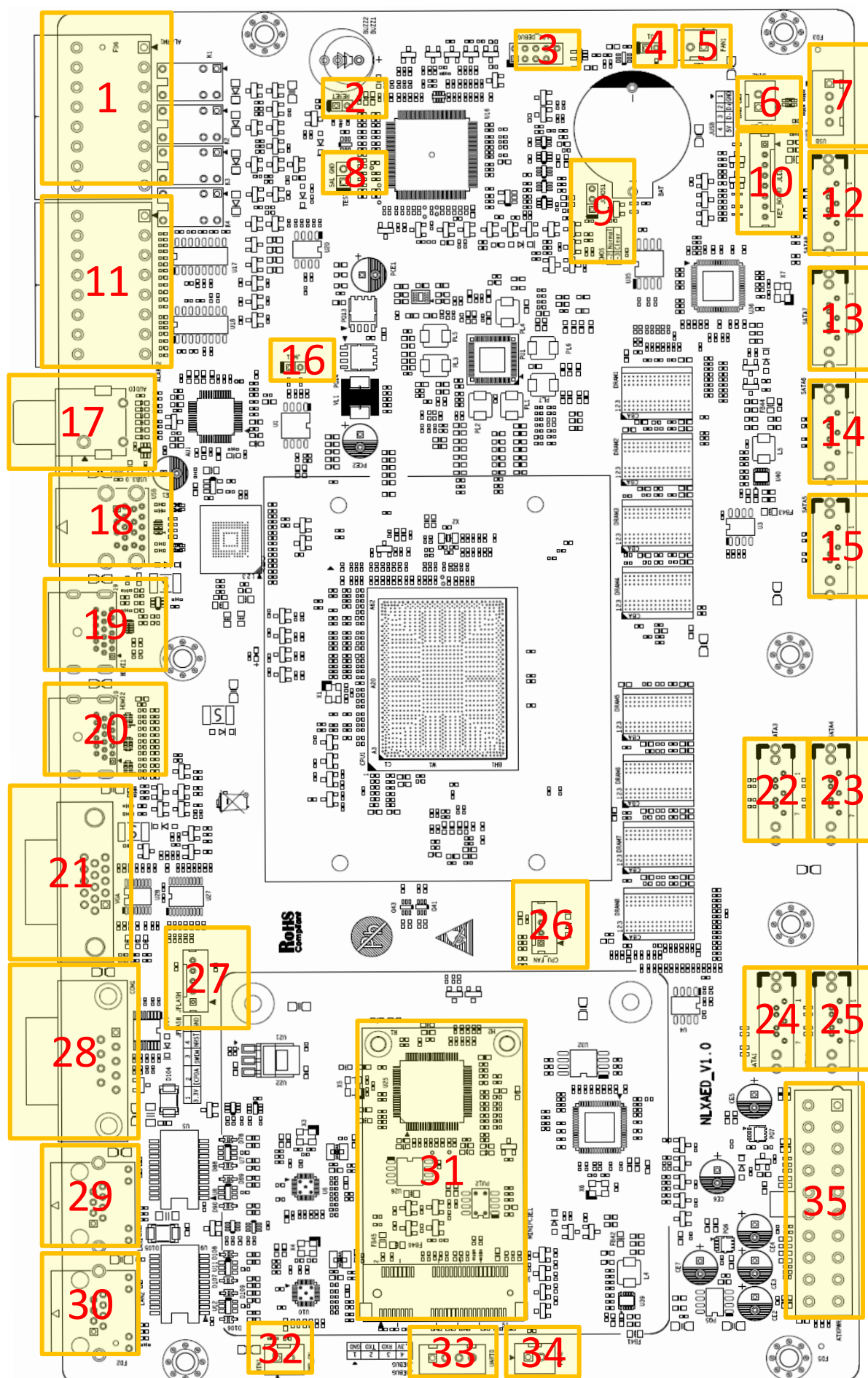
Medical industry, Traffic industry, Advertising Machine, Financial industry,

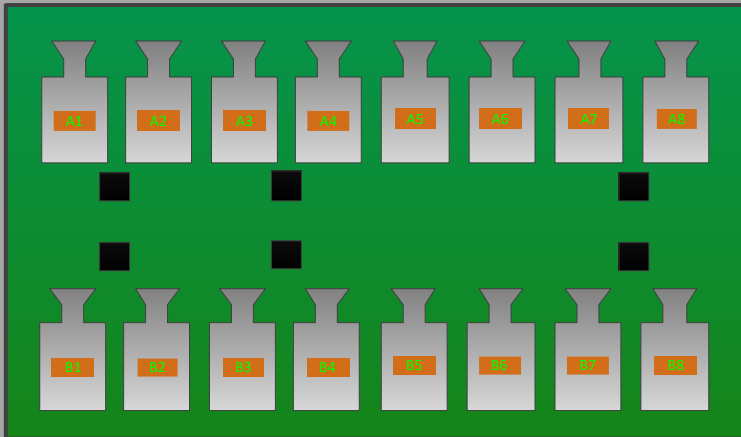


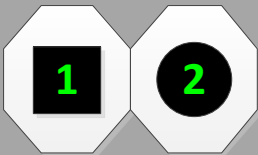
Specifications

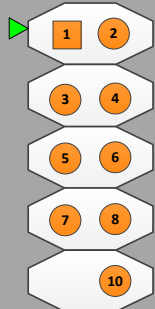
CPU	CPU	Intel Apollo J3455 of 4 Cores 4 Threads
	Instruction Set	64bit
	Lithography	14nm
	Frequency	1.5 GHz- 2.3 GHz
Memory	Type	Memory Down
	Channel	Dual Channel
	Max Memory Size	4GB
Graphics	Graphics	Intel HD Graphics
	Graphics Frequency	250 MHz - 750MHz
	Displays Supported	2 Independent Display (2 x HDMI, 1 x VGA)
Audio	ALC662 HD Audio	x1 Audio line out, x1 Audio line in
Ethernet	RTL8111H	x2 10/100/1000M BASET LAN
Internal Connector	JKEY	x1 Wafer 1x8 PIN (Define by customer)
	AI	x1 MINIPCIE Socket
	SATA	x8 7PIN SATA
	ATX	x1 2x10 PIN Standard ATX
	BTN	x2 1x2 PIN Wafer
	FAN	x2 1x2 PIN Wafer
	USB	x1 1 port USB2.0, 1X4 Wafer
	CPU_FAN	x1 1x4 PIN Wafer
I/O	ALARM	x2 2x8 PIN Ph
	AUDIO	x1 2x1 AV
	USB	x1 Dual USB CONN
	HDMI	x2 Standard HDMI
	VGA	x1 Standard DB15
	RJ45	x2 Single RJ45
BIOS	Vender	AMI
	ACPI	Supported
	EUP	Supported
Power	ATX	Standard ATX
Dimensions	PCB	265*150mm
Requirements Environment	Operation	-15℃~+60℃, 10%~95% RTH
	Storeage	-40℃~+70℃, 10%~95% RTH



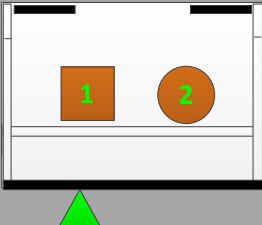


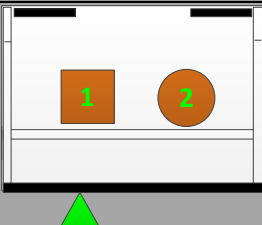
ALARM	ALARM1 (①)																																
PIN Define	 <table><tr><td>A1</td><td>RS422RX-</td><td>B1</td><td>RS422TX-</td></tr><tr><td>A2</td><td>RS422RX+</td><td>B2</td><td>RS422TX+</td></tr><tr><td>A3</td><td>COM1</td><td>B3</td><td>COM2</td></tr><tr><td>A4</td><td>OPEN1</td><td>B4</td><td>OPEN2</td></tr><tr><td>A5</td><td>COM3</td><td>B5</td><td>COM4</td></tr><tr><td>A6</td><td>OPEN3</td><td>B6</td><td>OPEN4</td></tr><tr><td>A7</td><td>GND</td><td>B7</td><td>GND</td></tr><tr><td>A8</td><td>GND</td><td>B8</td><td>GND</td></tr></table>	A1	RS422RX-	B1	RS422TX-	A2	RS422RX+	B2	RS422TX+	A3	COM1	B3	COM2	A4	OPEN1	B4	OPEN2	A5	COM3	B5	COM4	A6	OPEN3	B6	OPEN4	A7	GND	B7	GND	A8	GND	B8	GND
A1	RS422RX-	B1	RS422TX-																														
A2	RS422RX+	B2	RS422TX+																														
A3	COM1	B3	COM2																														
A4	OPEN1	B4	OPEN2																														
A5	COM3	B5	COM4																														
A6	OPEN3	B6	OPEN4																														
A7	GND	B7	GND																														
A8	GND	B8	GND																														
Type	Phonenix PH=3.81 2x8 PIN																																

RESET	RESET (②)				
PIN Define	 <table border="1"> <tbody> <tr> <td>1</td><td>RESET</td></tr> <tr> <td>2</td><td>GND</td></tr> </tbody> </table>	1	RESET	2	GND
1	RESET				
2	GND				
Type	1x2 DuPont Header PH=2.0mm				
Memo	Internal Debug only, Reset system				

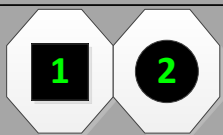
LPC_DEBUG	LPC_DEBUG (③)																				
PIN Define	 <table><tr><td>1</td><td>LAD3</td><td>2</td><td>25M_CLK</td></tr><tr><td>3</td><td>LAD2</td><td>4</td><td>LFRAME#</td></tr><tr><td>5</td><td>LAD1</td><td>6</td><td>LESET#</td></tr><tr><td>7</td><td>LAD0</td><td>8</td><td>GND</td></tr><tr><td>9</td><td>NC</td><td>10</td><td>+3.3V</td></tr></table>	1	LAD3	2	25M_CLK	3	LAD2	4	LFRAME#	5	LAD1	6	LESET#	7	LAD0	8	GND	9	NC	10	+3.3V
1	LAD3	2	25M_CLK																		
3	LAD2	4	LFRAME#																		
5	LAD1	6	LESET#																		
7	LAD0	8	GND																		
9	NC	10	+3.3V																		
Type	2x5 DuPont Header, PIN9 NC, PH=2.0mm																				
Memo	For Debug only																				

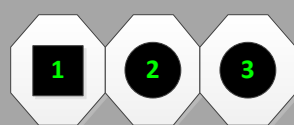
J1	J1 (④)
PIN Define	
Type	1x2 DuPont Header PH=2.0mm
Memo	Internal Debug only

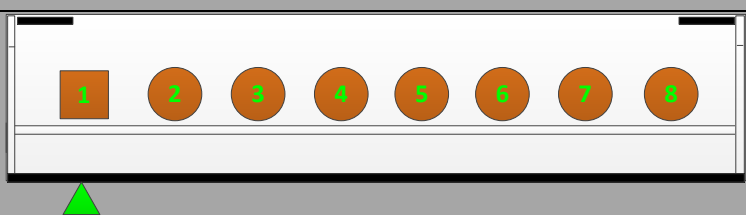
FAN	FAN1 (⑤), FAN2 (③④)				
PIN Define	 <table border="1" data-bbox="1061 1368 1367 1449"> <tbody> <tr> <td>1</td><td>+12V</td></tr> <tr> <td>2</td><td>GND</td></tr> </tbody> </table>	1	+12V	2	GND
1	+12V				
2	GND				
Type	1X2 Wafer, PH=2.54mm				
Memo	For sysfan				

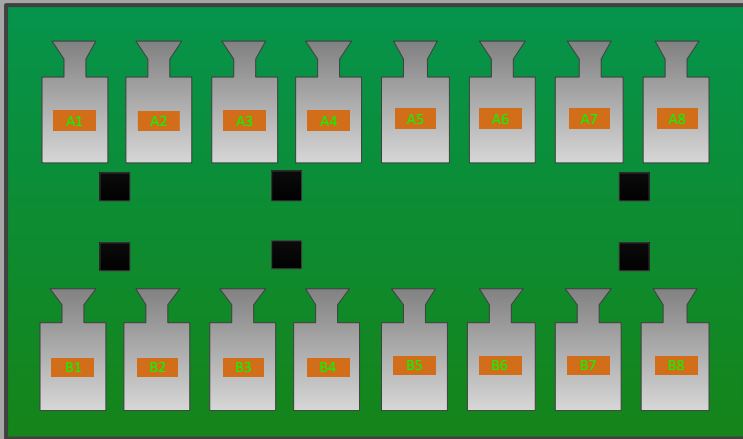
BTN	BTN1 (⑥), BTN2 (③②)				
PIN Define	 <table border="1" data-bbox="1061 1816 1367 1897"> <tbody> <tr> <td>1</td><td>BTN+</td></tr> <tr> <td>2</td><td>GND</td></tr> </tbody> </table>	1	BTN+	2	GND
1	BTN+				
2	GND				
Type	1X2 Wafer, PH=2.54mm				
Memo	For Power on				

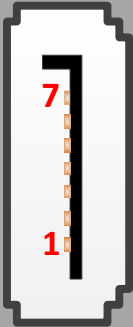
USB	JUSB (⑦)								
PIN Define	 <table border="1"> <tr><td>1</td><td>GND</td></tr> <tr><td>2</td><td>D+</td></tr> <tr><td>3</td><td>D-</td></tr> <tr><td>4</td><td>Vbus</td></tr> </table>	1	GND	2	D+	3	D-	4	Vbus
1	GND								
2	D+								
3	D-								
4	Vbus								
Type	1X4 Wafer, PH=2.54mm								
Memo									

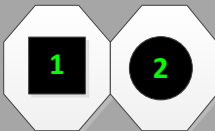
TEST	TEST (⑧)				
PIN Define	 <table border="1"> <tr><td>1</td><td>+V5AL</td></tr> <tr><td>2</td><td>GND</td></tr> </table>	1	+V5AL	2	GND
1	+V5AL				
2	GND				
Type	1x2 DuPont Header PH=2.54mm				
Memo	Internal Debug only				

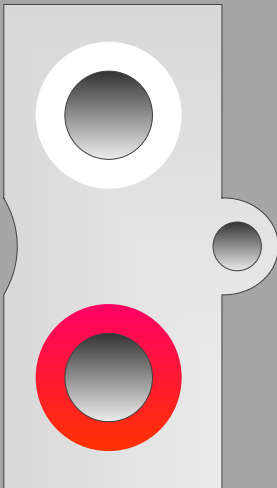
JCMOS	JCMOS1 (⑨)									
PIN Define	 <table><tr><th>Pin</th><th>1-2</th><th>2-3</th></tr><tr><td>Define</td><td>Normal</td><td>Clear</td></tr><tr><td>Default</td><td colspan="2">1-2</td></tr></table>	Pin	1-2	2-3	Define	Normal	Clear	Default	1-2	
Pin	1-2	2-3								
Define	Normal	Clear								
Default	1-2									
Type	1x3 DuPont Header PH=2.0mm									
Memo	Short 2-3, Clear COMS									

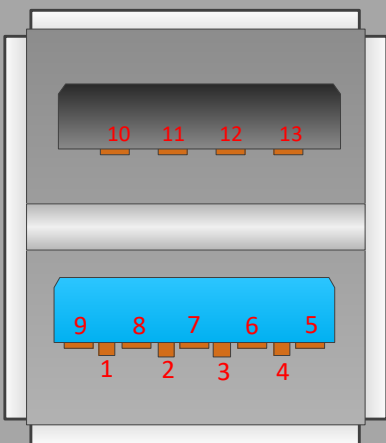
JLED	JLED (⑩)																
PIN Define	 <table border="1"> <tr><td>1</td><td>IR_SEN</td></tr> <tr><td>2</td><td>GND</td></tr> <tr><td>3</td><td>LED_CS</td></tr> <tr><td>4</td><td>KEY_CLKFR</td></tr> <tr><td>5</td><td>KEY_OUTFR</td></tr> <tr><td>6</td><td>KEY_INFR</td></tr> <tr><td>7</td><td>5V</td></tr> <tr><td>8</td><td>3.3V</td></tr> </table>	1	IR_SEN	2	GND	3	LED_CS	4	KEY_CLKFR	5	KEY_OUTFR	6	KEY_INFR	7	5V	8	3.3V
1	IR_SEN																
2	GND																
3	LED_CS																
4	KEY_CLKFR																
5	KEY_OUTFR																
6	KEY_INFR																
7	5V																
8	3.3V																
Type	1X8 Wafer, PH=2.0mm																

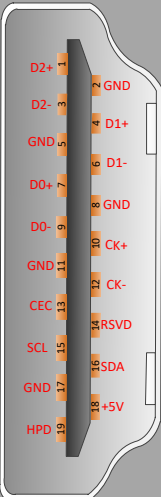
ALARM	ALARM2 (11)																																
PIN Define	 <table><tr><td>A1</td><td>IN1</td><td>B1</td><td>IN2</td></tr><tr><td>A2</td><td>IN3</td><td>B2</td><td>IN4</td></tr><tr><td>A3</td><td>IN5</td><td>B3</td><td>IN6</td></tr><tr><td>A4</td><td>IN7</td><td>B4</td><td>IN8</td></tr><tr><td>A5</td><td>IN9</td><td>B5</td><td>IN10</td></tr><tr><td>A6</td><td>IN11</td><td>B6</td><td>IN12</td></tr><tr><td>A7</td><td>IN13</td><td>B7</td><td>IN14</td></tr><tr><td>A8</td><td>IN15</td><td>B8</td><td>IN16</td></tr></table>	A1	IN1	B1	IN2	A2	IN3	B2	IN4	A3	IN5	B3	IN6	A4	IN7	B4	IN8	A5	IN9	B5	IN10	A6	IN11	B6	IN12	A7	IN13	B7	IN14	A8	IN15	B8	IN16
A1	IN1	B1	IN2																														
A2	IN3	B2	IN4																														
A3	IN5	B3	IN6																														
A4	IN7	B4	IN8																														
A5	IN9	B5	IN10																														
A6	IN11	B6	IN12																														
A7	IN13	B7	IN14																														
A8	IN15	B8	IN16																														
Type	Phonenix PH=3.81 2x8 PIN																																

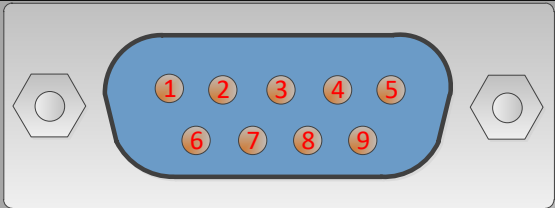
SATA	SATA8 (12) , SATA7 (13) , SATA6 (14) , SATA5 (15) , SATA3 (22) , SATA4 (23) , SATA1 (24) , SATA2 (25)														
PIN Define	 <table><tr><td>1</td><td>GND</td></tr><tr><td>2</td><td>TX+</td></tr><tr><td>3</td><td>TX-</td></tr><tr><td>4</td><td>GND</td></tr><tr><td>5</td><td>RX-</td></tr><tr><td>6</td><td>RX+</td></tr><tr><td>7</td><td>GND</td></tr></table>	1	GND	2	TX+	3	TX-	4	GND	5	RX-	6	RX+	7	GND
1	GND														
2	TX+														
3	TX-														
4	GND														
5	RX-														
6	RX+														
7	GND														
Type	7PIN SATA														

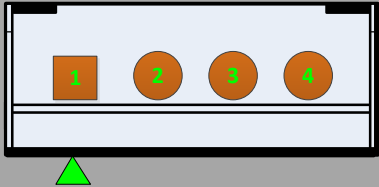
TXE	JME1 (①⑥)
PIN Define	
Type	1x2 DuPont Header, PH=2.0mm
Memo	Short PIN1 and PIN2, Disable TXE

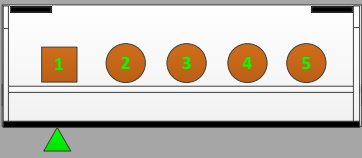
Audio	HP (①)								
PIN Define	 <table><tr><th colspan="2">UP</th><th colspan="2">Down</th></tr><tr><td>L</td><td>AUDIO OUT</td><td>L</td><td>AUDIO IN</td></tr></table>	UP		Down		L	AUDIO OUT	L	AUDIO IN
UP		Down							
L	AUDIO OUT	L	AUDIO IN						
Type	Audio AV jack								

USB3. 0	USB (18)																															
PIN Define			<table><tr><td>1</td><td>Vbus</td><td>2</td><td>D1-</td></tr><tr><td>3</td><td>D1+</td><td>4</td><td>GND</td></tr><tr><td>5</td><td>SSRX1-</td><td>6</td><td>SSRX1+</td></tr><tr><td>7</td><td>GND</td><td>8</td><td>SSTX1-</td></tr><tr><td>9</td><td>SSTX1+</td><td>10</td><td>Vbus</td></tr><tr><td>11</td><td>D2-</td><td>12</td><td>D2+</td></tr><tr><td>13</td><td>GND</td><td></td><td></td></tr></table>		1	Vbus	2	D1-	3	D1+	4	GND	5	SSRX1-	6	SSRX1+	7	GND	8	SSTX1-	9	SSTX1+	10	Vbus	11	D2-	12	D2+	13	GND		
1	Vbus	2	D1-																													
3	D1+	4	GND																													
5	SSRX1-	6	SSRX1+																													
7	GND	8	SSTX1-																													
9	SSTX1+	10	Vbus																													
11	D2-	12	D2+																													
13	GND																															
Type	Dual USB3. 0+USB2. 0 connector																															
Memo																																

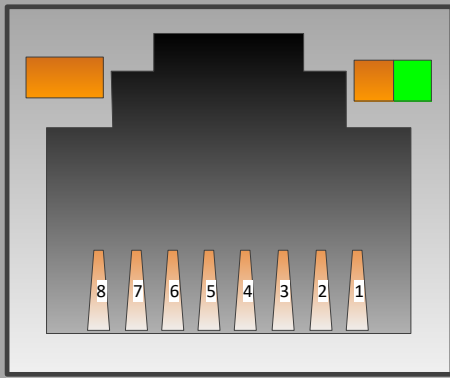
HDMI	HDMI1 (19), HDMI2 (20)																																											
PIN Define	 <table><tr><td>1</td><td>D2+</td><td>2</td><td>GND</td></tr><tr><td>3</td><td>D2-</td><td>4</td><td>D1+</td></tr><tr><td>5</td><td>GND</td><td>6</td><td>D1-</td></tr><tr><td>7</td><td>D0+</td><td>8</td><td>GND</td></tr><tr><td>9</td><td>D0-</td><td>10</td><td>CK+</td></tr><tr><td>11</td><td>GND</td><td>12</td><td>CK-</td></tr><tr><td>13</td><td>CEC</td><td>14</td><td>RSVD</td></tr><tr><td>15</td><td>SCL</td><td>16</td><td>SDA</td></tr><tr><td>17</td><td>GND</td><td>18</td><td>+5V</td></tr><tr><td>19</td><td>HPD</td><td></td><td></td></tr></table>				1	D2+	2	GND	3	D2-	4	D1+	5	GND	6	D1-	7	D0+	8	GND	9	D0-	10	CK+	11	GND	12	CK-	13	CEC	14	RSVD	15	SCL	16	SDA	17	GND	18	+5V	19	HPD		
1	D2+	2	GND																																									
3	D2-	4	D1+																																									
5	GND	6	D1-																																									
7	D0+	8	GND																																									
9	D0-	10	CK+																																									
11	GND	12	CK-																																									
13	CEC	14	RSVD																																									
15	SCL	16	SDA																																									
17	GND	18	+5V																																									
19	HPD																																											
Type	Standard HDMI connector, Cross stand																																											

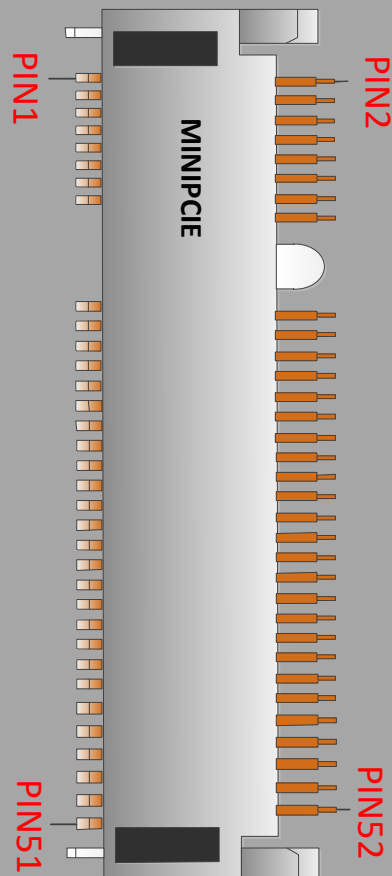
COM	COM1 (21)			
PIN Define				
	1	N/C	2	RXD
	3	TXD	4	N/C
	5	GND	6	N/C
	7	N/C	8	N/C
	9	N/C		
Type	Standard DB9 COM Connector			
Memo	1. Support RS232 2. Support RX/TX			

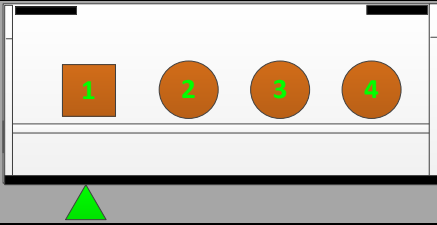
FAN	CPU_FAN (26)								
PIN Define	 <table border="1"> <tr><td>1</td><td>CTRL</td></tr> <tr><td>2</td><td>TAC</td></tr> <tr><td>3</td><td>+V12S</td></tr> <tr><td>4</td><td>GND</td></tr> </table>	1	CTRL	2	TAC	3	+V12S	4	GND
1	CTRL								
2	TAC								
3	+V12S								
4	GND								
Type	1X4 Wafer, PH=2.0mm								
Memo	Reserve for test								

JFLASH	JFLASH (27)			
PIN Define		1	+V3.3S	
		2	ICPDA	
		3	SWIM	
		4	NRST	
		5	GND	
Type	1X5 Wafer, PH=2.0mm			
Memo	Debug for mcu			

VGA	VGA (28)			
PIN Define		1	R	2 G
		3	B	4 NC
		5	GND	6 GND
		7	GND	8 GND
		9	GVCC	10 GND
		11	NC	12 SDA
		13	HSYN C	14 VSYNC
		15	CLK	
Type	Standard DB15 VGA Connector			

LAN	LAN1 (29), LAN2 (30)			
PIN Define		1	A+	
		2	A-	
		3	B+	
		4	C+	
		5	C-	
		6	B-	
		7	D+	
		8	D-	
Type	Standard Single RJ45 Connector			
Memo	Left LED:Orange Right LED:Orange/Green Dual LED Realtek RTL 8111G 10 / 100 / 1000 Mb/s auto negotiation, Half / Full duplex capability			

AI	JAI (31)			
PIN Define				

JDEBUG	JDEBUG (33)								
PIN Define	 <table border="1"> <tr><td>1</td><td>GND</td></tr> <tr><td>2</td><td>TXD</td></tr> <tr><td>3</td><td>RXD</td></tr> <tr><td>4</td><td>+3.3V</td></tr> </table>	1	GND	2	TXD	3	RXD	4	+3.3V
1	GND								
2	TXD								
3	RXD								
4	+3.3V								
Type	1X4 Wafer, PH=2.54mm								
Memo									

ATXPWR	ATXPWR (35)																																								
PIN Define	<table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr></table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20																				
	1	2	3	4	5	6	7	8	9	10																															
	11	12	13	14	15	16	17	18	19	20																															
	<table><tr><td>1</td><td>3.3V</td><td>11</td><td>3.3V</td></tr><tr><td>2</td><td>3.3V</td><td>12</td><td>-12V</td></tr><tr><td>3</td><td>GND</td><td>13</td><td>GND</td></tr><tr><td>4</td><td>5V</td><td>14</td><td>PSON</td></tr><tr><td>5</td><td>GND</td><td>15</td><td>GND</td></tr><tr><td>6</td><td>5V</td><td>16</td><td>GND</td></tr><tr><td>7</td><td>GND</td><td>17</td><td>GND</td></tr><tr><td>8</td><td>PG</td><td>18</td><td>-5V</td></tr><tr><td>9</td><td>5VSB</td><td>19</td><td>5V</td></tr><tr><td>10</td><td>12V</td><td>20</td><td>5V</td></tr></table>	1	3.3V	11	3.3V	2	3.3V	12	-12V	3	GND	13	GND	4	5V	14	PSON	5	GND	15	GND	6	5V	16	GND	7	GND	17	GND	8	PG	18	-5V	9	5VSB	19	5V	10	12V	20	5V
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Type	ATX Customized 20 pin connector																																								
Memo	Support standard ATX Power																																								