

入门级网络安全通信平台

RA-N1005 产品规格书



编制：刘富刚

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Changelist

版本	日期	变更内容	修订人
V1.0	2017-10-18	首次发行	刘富刚

一、产品概述

RA-N1005 是锐宝智联开发的一款入门级网络安全通信平台。整机采用 Intel Apollo 平台的高性能低功耗 CPU J4205/J3455，最高可达 4 核 2.6GHz。支持单通道 DDR3L 1866MHz 内存，最大支持 8G。板载 2 个 Intel 82580EB 网卡芯片，支持 6 个 1000M RJ45 电口和 2 个 1000M SFP 光口，6 个电口支持 3 组第三代 Bypass。支持 1 个 PCIeX4 扩展，可扩展 4 电或 4 光。整机采用双电源设计，系统更加稳定可靠。

RA-N1005 采用最新的处理器架构和网络芯片，适用于防火墙、VPN、安全设计、流量控制、DDoS、IPS、IDS 等诸多应用，具有性价比高、数据交换快、存储性能强、网络性能高等特点。

二、产品特点

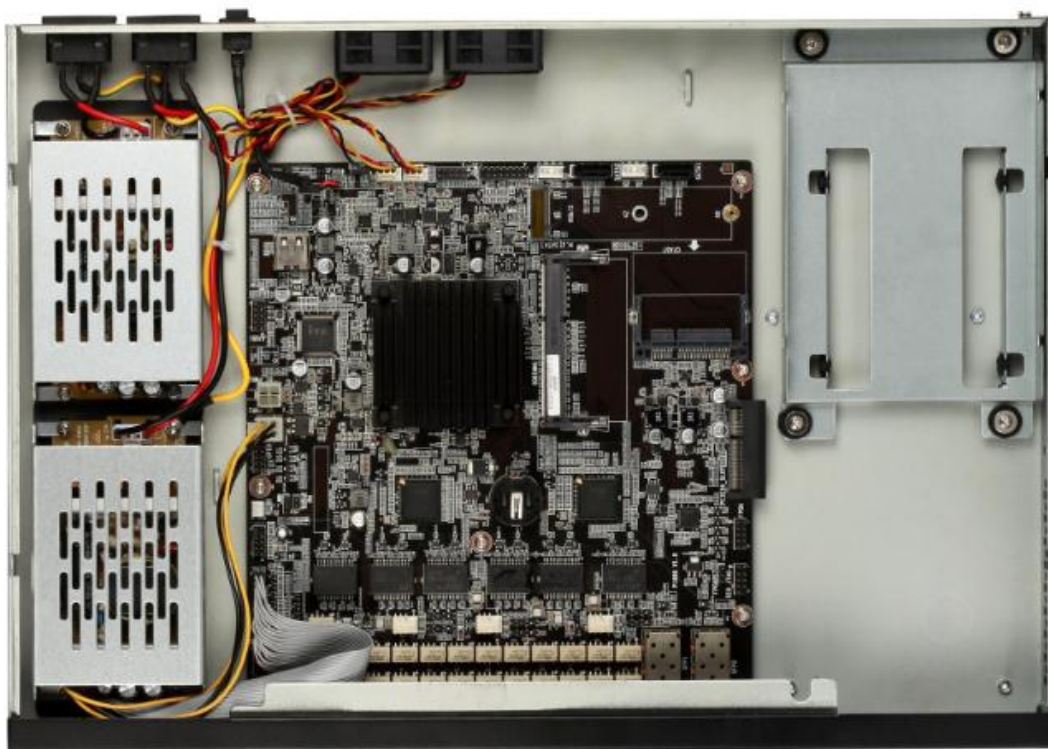
1. 采用 Intel 高性能低功耗 J4205 CPU
2. 支持 DDR3L 1866MHz 内存，最大支持 8G
3. 板载 6 个千兆 RJ45 电口+2 个千兆 SFP 光口
4. 采用双电源设计

三、产品规格

序号	种类	项目	描述
1	平台	CPU	Intel Apollo J4205/J3455 CPU
		芯片组	/
2	内存	类型	1X DDR3L 1866
		插槽	1X 204pin So-DIMM
		容量	Max 8G
3	网络	网络接口	6X RJ45 Ports (3XBypass)+2X SFP Port
		控制芯片	2X Intel 82580EB
		扩展模块	见订购信息
4	存储	硬盘	1X SATA3.0, 兼容 2.5 寸硬盘位和 3.5 寸硬盘位
		CFast	1X CFast
		SSD	1X M.2, 2280/2242, 与 CFast 二选一
5	扩展	PCIE	1X 卧式 PCIeX4 扩展槽，扩展网卡
6	I/O 接口	USB	2X USB3.0 接口+2X USB2.0 插针 1X 卧式 USB2.0 接口
		Console	1X RJ45 COM+1X COM 插针
		LED	2X PWR LED+1X RUN LED+1X HDD LED+2X GPIO LED+ 3X BP LED+2X SFP LED
		SATA	2X SATA3.0 接口+2X 4pin 供电插针
		HDMI	1X PIN Header

		Button	1X 船型开关
		电源接口	2X 3pin AC 端子
7	电源	双电	2X 60W 开放式电源
8	物理参数	尺寸	430X300X44mm(1U)
		温度	工作温度：-15-50℃；存储温度：-40-70℃
		湿度	5%-95%，无冷凝
9	系统	操作系统	Windows,Linux

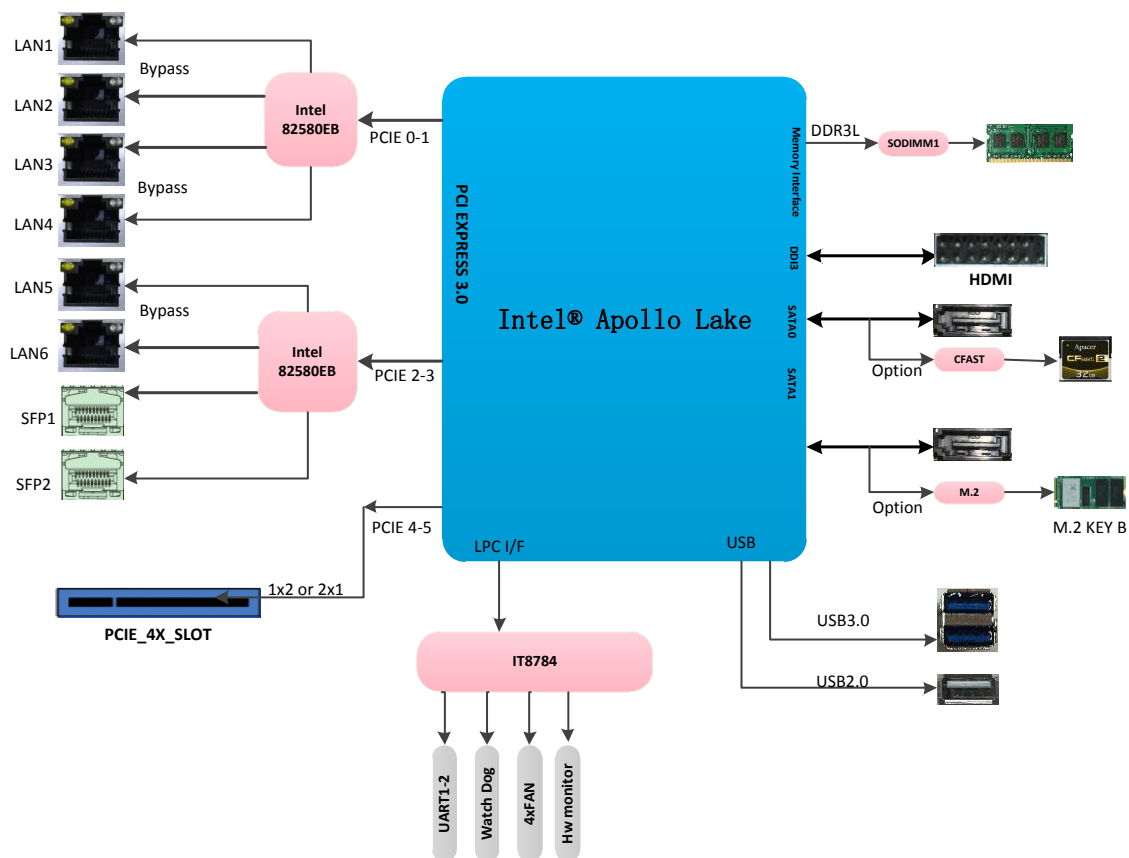
四、产品内部布局图



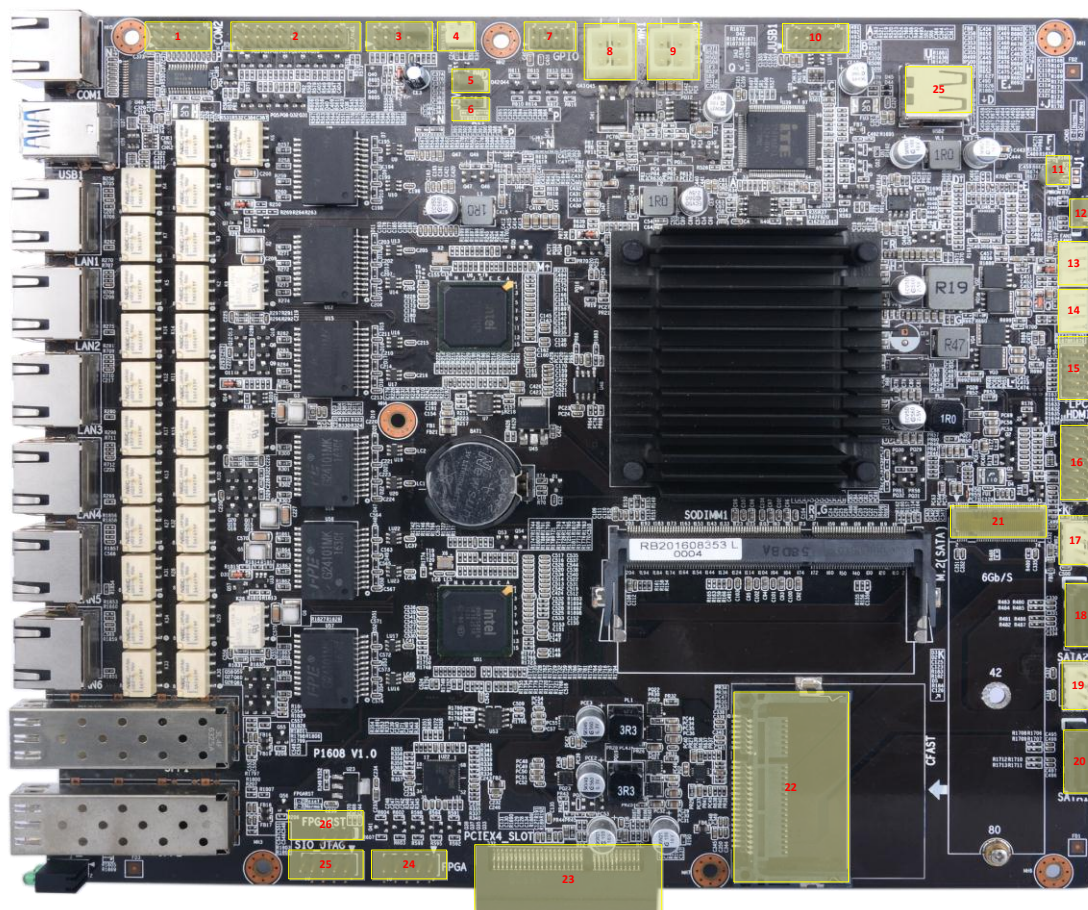
五、订购信息

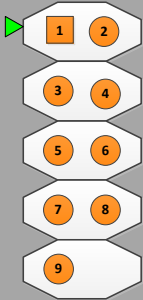
产品名称	简述
RA-N1005A	1U 19" 上架机箱, RB-N308CF, 双 60W 电源, 1 个扩展槽位
RA-N1005B	1U 19" 上架机箱, RB-N308CF, 单 60W 电源, 1 个扩展槽位

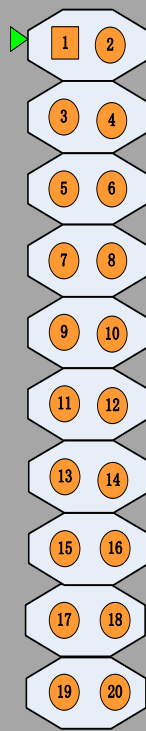
六、产品框图

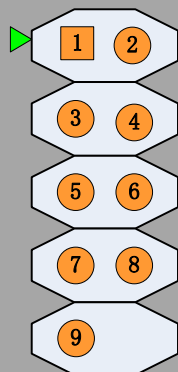


七、主板定义



COM	COM2 (①)				
PIN Define		1	DCD	2	RXD
		3	TXD	4	DTR
		5	GND	6	DSR
		7	RTS	8	CTS
		9	RI		
Type	2x5 DuPont Header,PIN10 NC， PH=2.54mm				

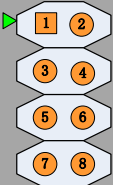
LED_PANEL	LED_PANEL (②)				
PIN Define		1	LED_PWR1+	2	LED_PWR1-
		3	LED_PWR2+	4	LED_PWR2-
		5	LED_RUN+	6	LED_RUN-
		7	LED_HDD+	8	LED_HDD-
		9	LED_HA+	10	LED_HA-
		11	LED_HB+	12	LED_HB-
		13	LED_BYA2	14	LED_BYA1
		15	LED_BYB2	16	LED_BYB1
		17	LED_BYC2	18	LED_BYC1
		19	NC	20	GND
	Type	2X10 Dupont Header PH=2.54 mm			

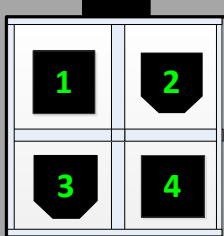
FPANEL	FPANEL (③)			
PIN Define				
	1	PWR_SW#	2	S_RESET
	3	GND	4	GND
	5	RESET_SW#	6	NC
	7	GND	8	PWR_SW#
	9	CUT	10	NC
Type	2X5 Dupont Header PH=2.54 mm NC PIN10			

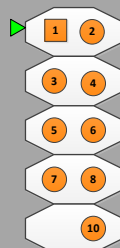
Bypass_SW	Bypass_SW (④)								
PIN Define	1 2 <table><tr><td>Pin</td><td>1</td><td>2</td></tr><tr><td>Define</td><td>Bypass_SW#</td><td>GND</td></tr></table>	Pin	1	2	Define	Bypass_SW#	GND		
Pin	1	2							
Define	Bypass_SW#	GND							
Type	1x2 DuPont Header PH=2.54mm								

JWD	JWD (⑤)			
PIN Define		Pin	1-2	2-3
		Define	Reset System	Reset Lan Bypass
		Default	1-2	
Type	1x3 DuPont Header PH=2.54mm			
Memo				

J5V	J5V (⑥)								
PIN Define		<table><tr><th>Pin</th><th>1</th><th>2</th></tr><tr><td>Define</td><td>VDD</td><td>GND</td></tr></table>	Pin	1	2	Define	VDD	GND	
Pin	1	2							
Define	VDD	GND							
Type	1x2 DuPont Header PH=2.54mm								

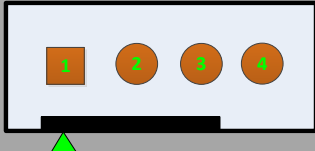
GPIO	GPIO (⑦)																			
PIN Define		<table><tr><td>1</td><td>+5V</td><td>2</td><td>+12V</td></tr><tr><td>3</td><td>GPIO1</td><td>4</td><td>GPIO2</td></tr><tr><td>5</td><td>GPIO3</td><td>6</td><td>GPIO4</td></tr><tr><td>7</td><td>GND</td><td>8</td><td>GND</td></tr></table>	1	+5V	2	+12V	3	GPIO1	4	GPIO2	5	GPIO3	6	GPIO4	7	GND	8	GND		
1	+5V	2	+12V																	
3	GPIO1	4	GPIO2																	
5	GPIO3	6	GPIO4																	
7	GND	8	GND																	
Type	2X4 Header PH=2.54 mm																			
Memo	Support4 independent GPIO																			

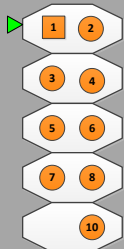
DC12V	DC12V (⑧ ⑨)				
PIN Define	 <table border="1" data-bbox="778 501 987 586"> <tr> <td>1-2</td><td>+12V</td></tr> <tr> <td>3-4</td><td>GND</td></tr> </table>	1-2	+12V	3-4	GND
1-2	+12V				
3-4	GND				
Type	DC Standard 4 pin connector				

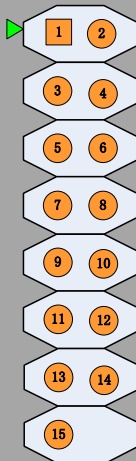
JUSB	JUSB1 (10)																				
PIN Define	 <table><tr><td>1</td><td>VBus</td><td>2</td><td>VBus</td></tr><tr><td>3</td><td>D0-</td><td>4</td><td>D1-</td></tr><tr><td>5</td><td>D0+</td><td>6</td><td>D2+</td></tr><tr><td>7</td><td>GND</td><td>8</td><td>GND</td></tr><tr><td>9</td><td>NC</td><td>10</td><td>GND</td></tr></table>	1	VBus	2	VBus	3	D0-	4	D1-	5	D0+	6	D2+	7	GND	8	GND	9	NC	10	GND
1	VBus	2	VBus																		
3	D0-	4	D1-																		
5	D0+	6	D2+																		
7	GND	8	GND																		
9	NC	10	GND																		
Type	2x5 DuPont Header,PIN9 NC, PH=2.54mm																				

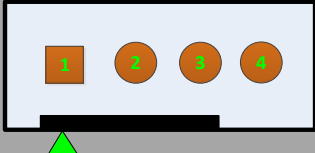
PowerButton	PWRON (⑪)								
PIN Define		<table><tr><td>Pin</td><td>1</td><td>2</td></tr><tr><td>Define</td><td>PWR_SW#</td><td>GND</td></tr></table>	Pin	1	2	Define	PWR_SW#	GND	
Pin	1	2							
Define	PWR_SW#	GND							
Type	1x2 DuPont Header PH=2.54mm								

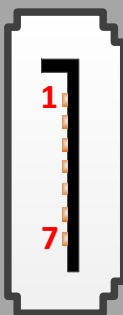
JCMOS	JCMOS (12)											
PIN Define		<table><tr><th>Pin</th><th>1-2</th><th>2-3</th></tr><tr><td>Define</td><td>Normal</td><td>Clear</td></tr><tr><td>Default</td><td colspan="2">1-2</td></tr></table>	Pin	1-2	2-3	Define	Normal	Clear	Default	1-2		
Pin	1-2	2-3										
Define	Normal	Clear										
Default	1-2											
Type	1x3 DuPont Header PH=2.54mm											
Memo	Short 2-3, Clear COMS											

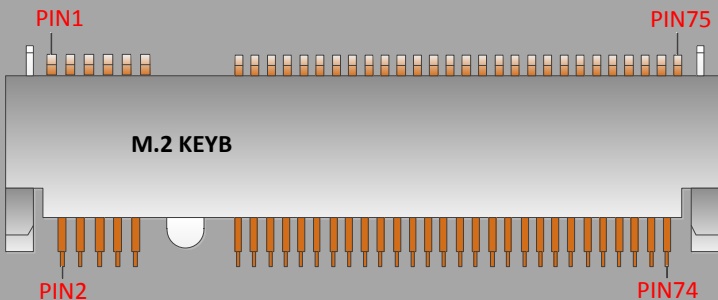
FAN	SYS_FAN1 (13), SYS_FAN2 (14)										
PIN Define		<table><tr><td>1</td><td>GND</td></tr><tr><td>2</td><td>+V12_FAN</td></tr><tr><td>3</td><td>FAN_TAC</td></tr><tr><td>4</td><td>FAN_CTL</td></tr></table>		1	GND	2	+V12_FAN	3	FAN_TAC	4	FAN_CTL
1	GND										
2	+V12_FAN										
3	FAN_TAC										
4	FAN_CTL										
Type	1X4 FAN Connector, PH=2.54mm										

LPC	LPC (15)																						
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=2.54mm																						
Memo	For Debug only																						

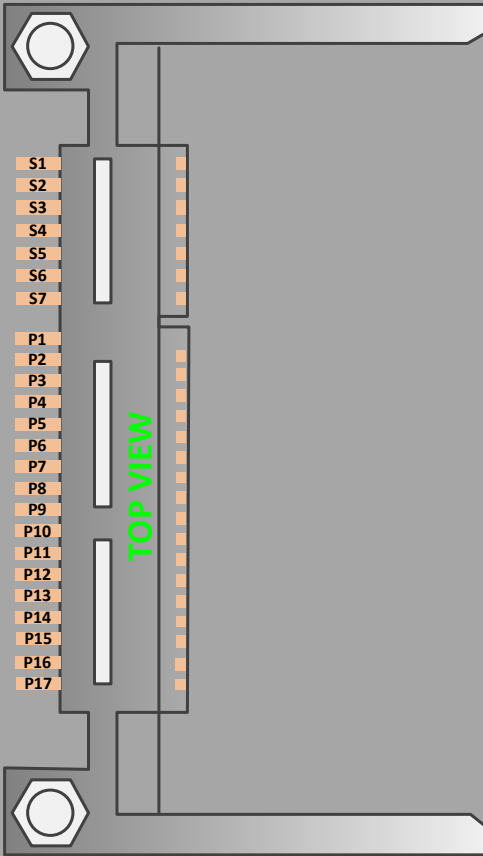
HDMI	HDMI (16)				
PIN Define		1	HPD	2	GND
		3	+5V	4	GND
		5	SCL	6	SDA
		7	CLK_N	8	CLK_P
		9	TX0_N	10	TX0_P
		11	TX1_N	12	TX1_P
		13	TX2_N	14	TX2_P
		15	GND	16	NC
	Type	2X8 Dupont Header PH=2.54 mm			

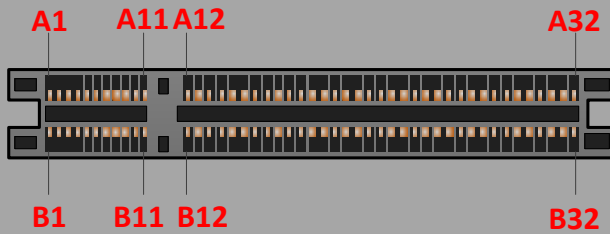
SATA_PWR	SATA_PWR1 (17),SATA_PWR2 (19),									
PIN Define		<table><tr><td>1</td><td>+12V</td></tr><tr><td>2</td><td>GND</td></tr><tr><td>3</td><td>GND</td></tr><tr><td>4</td><td>+5V</td></tr></table>	1	+12V	2	GND	3	GND	4	+5V
1	+12V									
2	GND									
3	GND									
4	+5V									
Type	1x4PIN SATA POWER Header,DIP, PH=2.54mm									

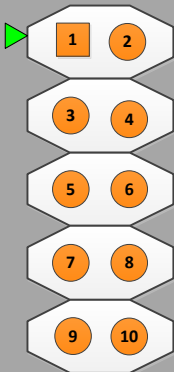
SATA	SATA2 (18) , SATA1 (20)																
PIN Define		<table><tr><td>1</td><td>GND</td></tr><tr><td>2</td><td>TX+</td></tr><tr><td>3</td><td>TX-</td></tr><tr><td>4</td><td>GND</td></tr><tr><td>5</td><td>RX-</td></tr><tr><td>6</td><td>RX+</td></tr><tr><td>7</td><td>GND</td></tr></table>	1	GND	2	TX+	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																

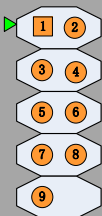
M.2	M.2(SATA) (21)		
PIN Define			

	1	CONFIG_3	2	+3.3V
	3	GND	4	+3.3V
	5	GND	6	POWER_OFF
	7	USBD+	8	W_DISABLE#1
	9	USBD-	10	GPIO_9/DAS/DSS
	11	GND	12	Key
	13	Key	14	Key
	15	Key	16	Key
	17	Key	18	Key
	19	Key	20	GPIO_5
	21	CONFIG_0	22	GPIO_6
	23	GPIO_11	24	GPIO_7
	25	GPIO_12	26	GPIO_10
	27	GND	28	GPIO_8
	29	PERN1/USB3.0-RX-	30	UIM-RESET
	31	PERP1/USB3.0-RX+	32	UIM-CLK
	33	GND	34	UIM-DATA
	35	PETN1/USB3.0-TX-	36	UIM-PWR
	37	PETP1/USB3.0-TX+	38	DEVSLP
	39	GND	40	GPIO_0
	41	PERN0/SATA-B+	42	GPIO_1
	43	PERP0/ SATA-B-	44	GPIO_2
	45	GND	46	GPIO_3
	47	PETN0/ SATA-A-	48	GPIO_4
	49	PETP0/ SATA-A+	50	PERST#
	51	GND	52	CLKREQ#
	53	REFCLKN	54	PEWake#
	55	REFCLKP	56	NC
	57	GND	58	NC
	59	ATCTL0	60	COEX3
	61	ATCTL1	62	COEX2
	63	ATCTL2	64	COEX1
	65	ATCTL3	66	SIM Detect
	67	Reset#	68	SUSCLK(32kHz)
	69	CONFIG_1	70	+3.3V
	71	GND	72	+3.3V
	73	GND	74	+3.3V
	75	CONFIG_2		
Type	M.2 Key B Socket			
Memo	Support SATA SSD Only			

CFAST	CFAST (22)																																																																						
PIN Define		<table border="1"> <tr><td>P1</td><td>CDI</td><td>S1</td><td>GND</td></tr> <tr><td>P2</td><td>GND</td><td>S2</td><td>TX+</td></tr> <tr><td>P3</td><td>NC</td><td>S3</td><td>TX-</td></tr> <tr><td>P4</td><td>NC</td><td>S4</td><td>GND</td></tr> <tr><td>P5</td><td>NC</td><td>S5</td><td>RX-</td></tr> <tr><td>P6</td><td>NC</td><td>S6</td><td>RX+</td></tr> <tr><td>P7</td><td>GND</td><td>S7</td><td>GND</td></tr> <tr><td>P8</td><td>NC</td><td></td><td></td></tr> <tr><td>P9</td><td>NC</td><td></td><td></td></tr> <tr><td>P10</td><td>NC</td><td></td><td></td></tr> <tr><td>P11</td><td>NC</td><td></td><td></td></tr> <tr><td>P12</td><td>NC</td><td></td><td></td></tr> <tr><td>P13</td><td>+V3.3S</td><td></td><td></td></tr> <tr><td>P14</td><td>+V3.3S</td><td></td><td></td></tr> <tr><td>P15</td><td>GND</td><td></td><td></td></tr> <tr><td>P16</td><td>GND</td><td></td><td></td></tr> <tr><td>P17</td><td>NC</td><td></td><td></td></tr> </table>		P1	CDI	S1	GND	P2	GND	S2	TX+	P3	NC	S3	TX-	P4	NC	S4	GND	P5	NC	S5	RX-	P6	NC	S6	RX+	P7	GND	S7	GND	P8	NC			P9	NC			P10	NC			P11	NC			P12	NC			P13	+V3.3S			P14	+V3.3S			P15	GND			P16	GND			P17	NC		
P1	CDI	S1	GND																																																																				
P2	GND	S2	TX+																																																																				
P3	NC	S3	TX-																																																																				
P4	NC	S4	GND																																																																				
P5	NC	S5	RX-																																																																				
P6	NC	S6	RX+																																																																				
P7	GND	S7	GND																																																																				
P8	NC																																																																						
P9	NC																																																																						
P10	NC																																																																						
P11	NC																																																																						
P12	NC																																																																						
P13	+V3.3S																																																																						
P14	+V3.3S																																																																						
P15	GND																																																																						
P16	GND																																																																						
P17	NC																																																																						
Type	CFAST Socket																																																																						

PCIE4X	PCIE_4X (23)
PIN Define	
Type	Standard Splint PCIE4X,PIN Define is PCIEX1

FPGA Debug pins 2#	FPGA (24)																				
PIN Define	 <table><tr><td>1</td><td>F_GP19</td><td>2</td><td>FPGA_TRST</td></tr><tr><td>3</td><td>F-GP20</td><td>4</td><td>FPGA_TDO</td></tr><tr><td>5</td><td>F-GP21</td><td>6</td><td>FPGA_TMS</td></tr><tr><td>7</td><td>F-GP22</td><td>8</td><td>FPGA_TDI</td></tr><tr><td>9</td><td>F-GP23</td><td>10</td><td>FPGA_TCK</td></tr></table>	1	F_GP19	2	FPGA_TRST	3	F-GP20	4	FPGA_TDO	5	F-GP21	6	FPGA_TMS	7	F-GP22	8	FPGA_TDI	9	F-GP23	10	FPGA_TCK
1	F_GP19	2	FPGA_TRST																		
3	F-GP20	4	FPGA_TDO																		
5	F-GP21	6	FPGA_TMS																		
7	F-GP22	8	FPGA_TDI																		
9	F-GP23	10	FPGA_TCK																		
Type	2x5 DuPont Header, PH=2.54mm																				

FPGA Debug pins 1#	SIO_JTAG (25)																							
PIN Define		<table><tr><td>1</td><td>FPGA_TCK</td><td>2</td><td>GND</td></tr><tr><td>3</td><td>FPGA_TDO</td><td>4</td><td>NC</td></tr><tr><td>5</td><td>FPGA_TMS</td><td>6</td><td>3VAL</td></tr><tr><td>7</td><td>3VAL</td><td>8</td><td>FPGA_RST</td></tr><tr><td>9</td><td>FPGA_TDI</td><td>10</td><td>CUT</td></tr></table>	1	FPGA_TCK	2	GND	3	FPGA_TDO	4	NC	5	FPGA_TMS	6	3VAL	7	3VAL	8	FPGA_RST	9	FPGA_TDI	10	CUT		
1	FPGA_TCK	2	GND																					
3	FPGA_TDO	4	NC																					
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7	3VAL	8	FPGA_RST																					
9	FPGA_TDI	10	CUT																					
Type	2x5 DuPont Header, PH=2.54mm																							

FPGA Reset	FPGARST (26)											
PIN Define		<table><tr><td>Pin</td><td>1</td><td>2</td><td>3</td></tr><tr><td>Define</td><td>FPGA_RST</td><td>GND</td><td>NC</td></tr></table>	Pin	1	2	3	Define	FPGA_RST	GND	NC		
Pin	1	2	3									
Define	FPGA_RST	GND	NC									
Type	1x3 DuPont Header PH=2.54mm											