

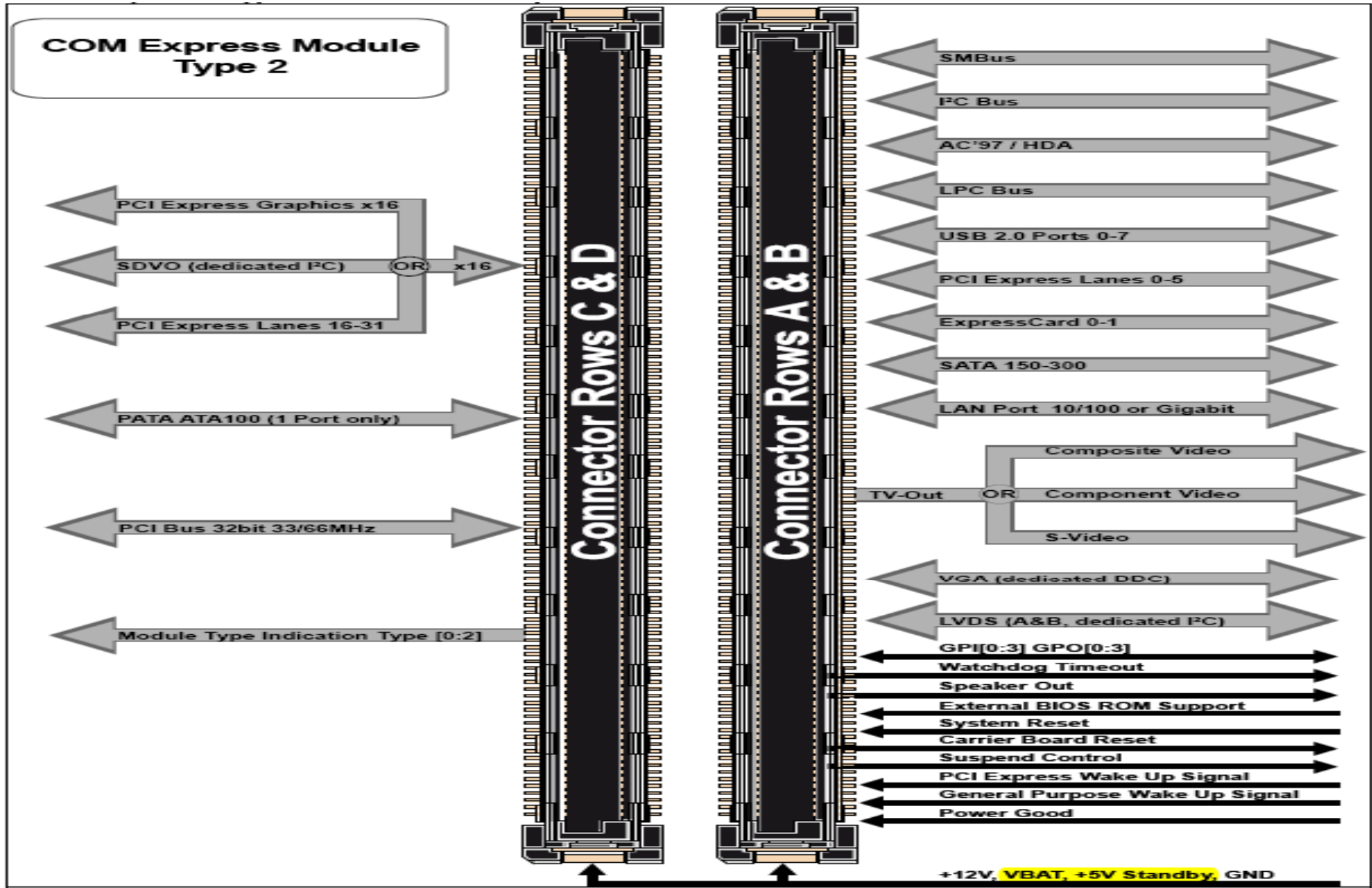
COM兼容设计指引

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Agenda

- **COM产品Pin out概况**
 - COM 2.0 与 1.0的差异
 - COM产品的机械结构

COM-E 框架



COM 1.0 v.s COM 2.0 for Type 2

COM 1.0		COM 2.0	COM 1.0		COM 2.0	COM 1.0		COM 2.0	COM 1.0		COM 2.0	
Raw A	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	
	Gigabit LAN	Gigabit LAN	Gigabit LAN	Gigabit LAN	Gigabit LAN	Gigabit LAN	IDE	IDE	IDE	IDE	IDE	
	SATA1	SATA1	LPC	LPC	LPC	LPC	PCI	PCI	PCI	PCI	PCI	
	AC'97	AC'97/ HD Audio	SMBus	SMBus	SMBus	SMBus						
	USB 2.0	USB 2.0	SATA 2	SATA 2	SATA 2	SATA 2	PCIE Graphic	PCIE Graphic	PCIE Graphic	PCIE Graphic	PCIE Graphic	
	LPC	LPC	SATA 3	SATA 3	SATA 3	SATA 3						
	PCIE by 1	PCIE by 1	WDT	WDT	WDT	WDT	SDVO	SDVO	SDVO	SDVO	SDVO	
	LVDS	LVDS	AC'97	AC'97/ HD Audio	AC'97	AC'97/ HD Audio						
	PCIE by 1	PCIE by 1	I2C	I2C	I2C	I2C	12V	12V	12V	12V	12V	
	Reserved	SPI	USB 2.0	USB 2.0	USB 2.0	USB 2.0						
	GND	GND	PCIE by 1	PCIE by 1	PCIE by 1	PCIE by 1	TV Out	SPI	Reserved	Reserved	Reserved	Reserved
	12V	Type 10 detect	LVDS	LVDS	LVDS	LVDS						
		Reserved	5V SB	5V SB	5V SB	5V SB	12V	Reserved	Reserved	Reserved	Reserved	
		12V	Reserved	BIOS Disable	Reserved	Reserved						
	12V	12V	VGA	VGA	VGA	VGA	12V	12V	12V	12V	12V	
			TV Out	SPI	TV Out	SPI						
		12V	Reserved	12V	Reserved							
		12V	12V	12V	12V							

COM 2.0 Type 2 v.s. Type 6

COM 2.0		COM 2.0		COM 2.0		COM 2.0															
Type 2	Type 6	Type 2	Type 6	Type 2	Type 6	Type 2	Type 6														
Raw A	Gigabit LAN	Gigabit LAN	Gigabit LAN	Raw B	Gigabit LAN	Gigabit LAN	Raw C	IDE	USB 3.0	Raw D	IDE	USB 3.0									
	SATA1	SATA1	LPC		LPC	PCI		PCI	PCI		DDI 1	DDI 1	Reserved								
	AC'97/ HD Audio	AC'97/ HD Audio	SMBus		SMBus						Reserved	PCIE by 1 (Port 7&8)	PCIE by 1 (Port 7&8)	DDI 2	DDI 1	Reserved					
	USB 2.0	USB 2.0	SATA 2		SATA 2						PCIE by 1 (Port 7&8)						PCIE by 1 (Port 7&8)	DDI 3	DDI 2	DDI 1	Reserved
	LPC	LPC	SATA 3		SATA 3																
	LVDS	LVDS	WDT		WDT						PCIE Graphic	PCIE Graphic	PCIE Graphic	PCIE Graphic	PCIE Graphic	PCIE Graphic					
	PCIE by 1	PCIE by 1	AC'97/ HD Audio		AC'97/ HD Audio												SDVO	SDVO	SDVO	SDVO	SDVO
	SPI	SPI	I2C		I2C						12V	12V	12V	12V	12V	12V					
	GND	TPM	USB 2.0		USB 2.0												Fan Control	Fan Control	Fan Control	Fan Control	Fan Control
	Type 10 detect	Type 10 detect	PCIE by 1		PCIE by 1						Sleep	Sleep	Sleep	Sleep	Sleep	Sleep					
	Reserved	Series Port 1 & 2	LVDS		LVDS												12V	12V	12V	12V	12V
		LID	5V SB		5V SB	BIOS Disable		BIOS Disable	BIOS Disable		BIOS Disable	BIOS Disable	BIOS Disable								
	12V	12V	VGA		VGA									SPI	SPI	SPI	SPI	SPI	SPI		
			SPI		SPI	Reserved		Reserved	Reserved		Reserved	Reserved	Reserved								
			Reserved		Fan Control									12V	12V	12V	12V	12V	12V		
			Reserved		Sleep	12V		12V	12V		12V	12V	12V								
		12V	12V																		

COM 2.0 Type 1 v.s. Type 10

COM 2.0

Raw A	Type 1	Type 10
	Gigabit LAN	Gigabit LAN
	SATA 1	SATA 1
	SATA 3	Reserved
	AC'97/ HD Audio	AC'97/ HD Audio
	USD 2.0	USD 2.0
	LPC	LPC
	PCIE by 1 (Port 5&6)	Reserved
	PCIE by 1 (Port 1~4)	PCIE by 1 (Port 1~4)
	LVDS (1st 24bit)	LVDS (1st 24bit)
	KB Reset	Reserved
	KB A20Gate	
	SPI	SPI
	GND	TPM
	Type 10 detect	Type 10 detect
	Reserved	Series port (Port 1&2)
	LID	
12V	12V	

COM 2.0

Raw B	Type 1	Type 10
	Gigabit LAN	Gigabit LAN
	LPC	LPC
	SMBus	SMBus
	SATA 2	SATA 2
	SATA 4	Reserved
	WDT	WDT
	AC'97/ HD Audio	AC'97/ HD Audio
	I2C	I2C
	USB 2.0	USB 2.0
	PCIE by 1 (Port 5&6)	Reserved
	PCIE by 1	PCIE by 1
	LVDS (2nd 24bit)	DDI port 1 5V SB
	BIOS Disable	BIOS Disable
	VGA	DDI port 1 Reserved
	Reserved	DDI port 1 Fan Control
	Sleep	
12V	12V	

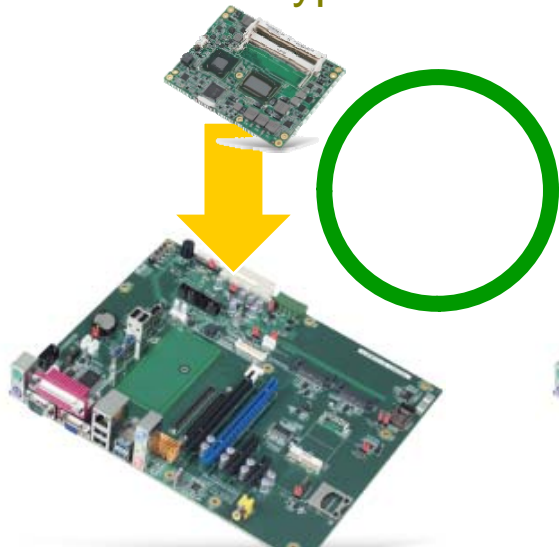
Connector	Model	SOM-5786 A102-1	SOM-5788 A101-4
		Type 2 Rev. 1.0	Type 2 Rev. 1.0
A-B	PCI Express Lanes 0 - 5	5	6
A-B	LVDS Channel A	1(GME965)	1(Ibex Peak-M)
A-B	LVDS Channel B	1(GME965)	1(Ibex Peak-M)
A-B	VGA Port	1(GME965)	1(Ibex Peak-M)
A-B	TV-Out	1(GME965)	1(CH7021A)
A-B	Display Port Interface 0	0	0
A-B	Serial Ports 1 -2	0	0
A-B	SATA / SAS Ports	3(ICH8M)	4(Ibex Peak-M)
A-B	AC'97 / HDA Digital Interface	1(ICH8M)	1(Ibex Peak-M)
A-B	USB 2.0 Ports	8(ICH8M)	8(Ibex Peak-M)
A-B	USB Client	0	0
A-B	LAN 0 (10/100Base-T min)	82562V/82566MM	1(82577LM)
A-B	Express Card Support	2(ICH8M)	2(Ibex Peak-M)
A-B	LPC Bus	1(ICH8M)	1(Ibex Peak-M)
A-B	SPI	0	0
C-D	PCI Express Lanes 16-31	16(GME965)	0
	PCI Express Graphics (PEG)	1(GME965)	1 (Arrandale+ECC)
	SDVO Channels 1-2 (muxed on PEG)	2(GME965)	0
		0	0
	DVO Channels	0	0
	TMDS/DVI-D Channels	0	0
	HDMI Channels	0	0
C-D	PCI Bus - 32 Bit	1(ICH8M)	1(Ibex Peak-M)
C-D	PATA Port	ICH8M	JMB368
C-D	Display Port Interface 1-3	0	2(Arrandale+ECC)
C-D	USB 3.0 Ports	0	0

Power Rail	Module Pin Current Capability (Amps)	Nominal Input (Volts)	Input Range (Volts)	Derated Input (Volts)	Max Input Ripple (mV)	Max Module Input Power (w. derated input) (Watts)	Assumed Conversion Efficiency	Max Load Power (Watts)
VCC_12V	10.5	12	11.4 - 12.6	11.4	+/- 100	120	85%	101
VCC_5V_SBY	2	5	4.75 – 5.25	4.75	+/- 50	9		
VCC_RTC	0.5	3	2.0 - 3.3		+/- 20			

Advantech Backward Compliance

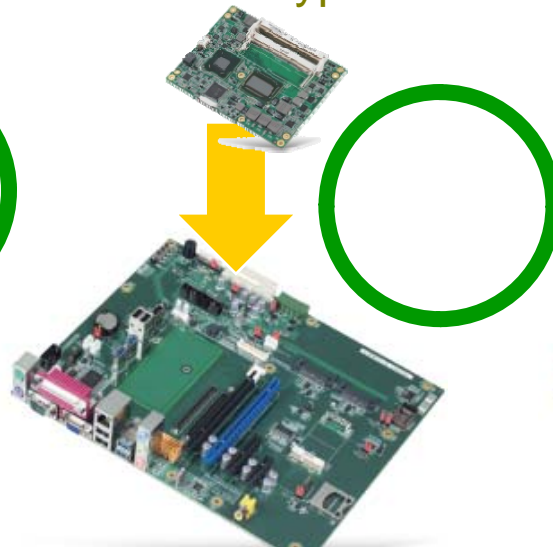
- 8 pins reclaimed from VCC_12V need protection
 - Type 6 & Type 10 reclaim 8 power pins for other function
 - Type 1-5 reserve these 8 pins
 - ADVANTECH will protect pins to withstand input power

COM R2.0 Type 2



COM R1.0 Type 2

COM R1.0 Type 2



COM R2.0 Type 2

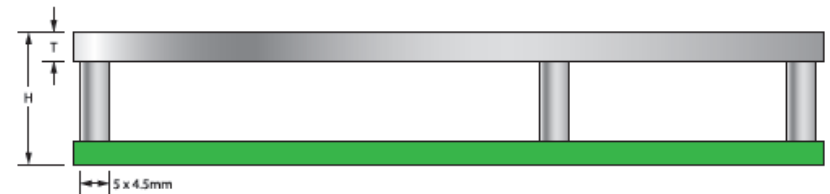
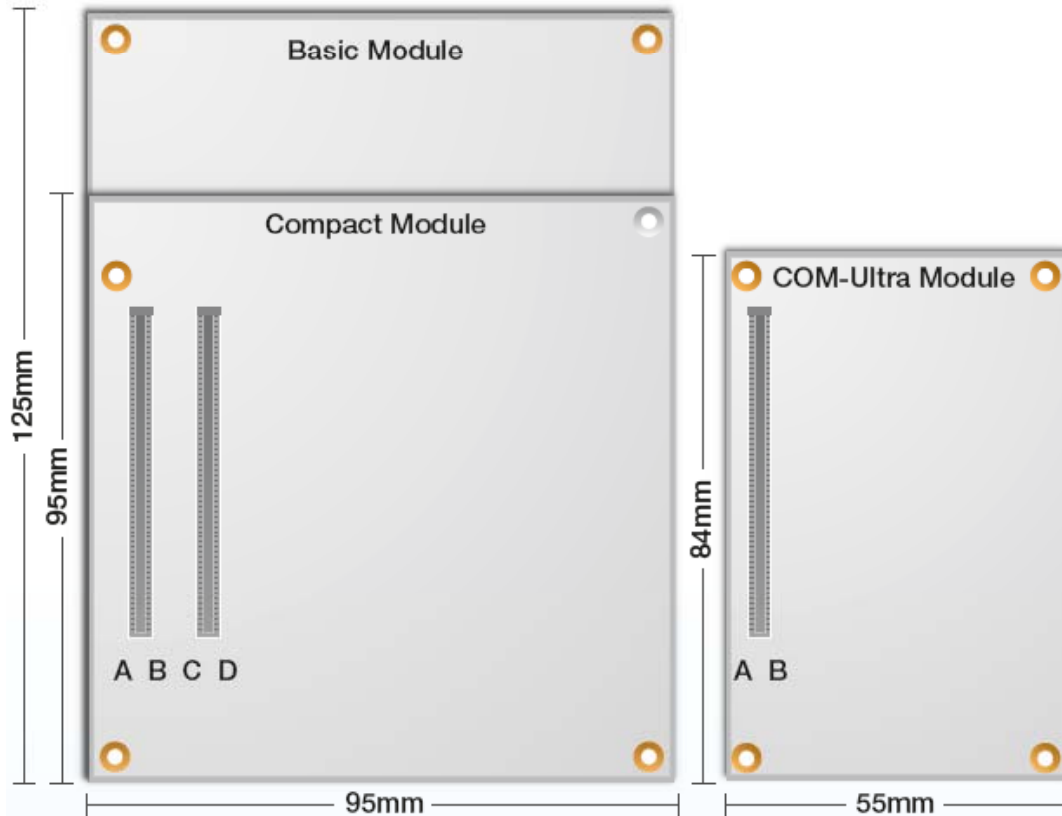
COM R2.0 Type 6



COM R1.0 Type 2

COM产品的机械结构

- COM Express Extended Module: 155mm x 110mm
- COM Express Basic Module: 125mm x 95mm
- **COM Express Compact Module: 95mm x 95mm** ← **COME官方设计方案**
- COM-Ultra Module: 84mm x 55mm



- Standoffs are threaded (M2.5) or clear (2.7mm)
- Thickness 'T' is implementation specific and may be 5mm.
- Height 'H' (which includes PCB thickness) shall be 18.00 mm

Thanks