

### 4.3.2 Gb Ethernet

One Gigabit Ethernet port is defined, designated GBE0. The ports **may** operate in 10, 100, or 1000 Mbit/sec modes. Magnetics are assumed to be on the Carrier Board. All COM Express Modules **shall** implement at least one Ethernet port on the GBE0 pin slot and this **should** be capable of at least 10/100 mode.

**Table 4.2: Gigabit Ethernet Signals, Pin Types, and Descriptions**

Gigabit Ethernet	Pin Type	Pwr Rail / Tolerance	Description	Pin Availability																				
GBE0_MDI[0:3]+ GBE0_MDI[0:3]-	I/O Analog	3.3V max Suspend	<p>Gigabit Ethernet Controller 0: Media Dependent Interface Differential Pairs 0,1,2,3. The MDI can operate in 1000, 100 and 10 Mbit / sec modes. Some pairs are unused in some modes, per the following:</p> <table border="1"> <thead> <tr> <th></th> <th>1000BASE-T</th> <th>100BASE-TX</th> <th>10BASE-T</th> </tr> </thead> <tbody> <tr> <td>MDI[0]+/-</td> <td>B1_DA+/-</td> <td>TX+/-</td> <td>TX+/-</td> </tr> <tr> <td>MDI[1]+/-</td> <td>B1_DB+/-</td> <td>RX+/-</td> <td>RX+/-</td> </tr> <tr> <td>MDI[2]+/-</td> <td>B1_DC+/-</td> <td></td> <td></td> </tr> <tr> <td>MDI[3]+/-</td> <td>B1_DD+/-</td> <td></td> <td></td> </tr> </tbody> </table>		1000BASE-T	100BASE-TX	10BASE-T	MDI[0]+/-	B1_DA+/-	TX+/-	TX+/-	MDI[1]+/-	B1_DB+/-	RX+/-	RX+/-	MDI[2]+/-	B1_DC+/-			MDI[3]+/-	B1_DD+/-			All
	1000BASE-T	100BASE-TX	10BASE-T																					
MDI[0]+/-	B1_DA+/-	TX+/-	TX+/-																					
MDI[1]+/-	B1_DB+/-	RX+/-	RX+/-																					
MDI[2]+/-	B1_DC+/-																							
MDI[3]+/-	B1_DD+/-																							
GBE0_ACT#	OD CMOS	3.3V Suspend/ 3.3V	Gigabit Ethernet Controller 0 activity indicator, active low.	All																				
GBE0_LINK#	OD CMOS	3.3V Suspend/ 3.3V	Gigabit Ethernet Controller 0 link indicator, active low.	All																				
GBE0_LINK100#	OD CMOS	3.3V Suspend/ 3.3V	Gigabit Ethernet Controller 0 100 Mbit / sec link indicator, active low.	All																				
GBE0_LINK1000#	OD CMOS	3.3V Suspend/ 3.3V	Gigabit Ethernet Controller 0 1000 Mbit / sec link indicator, active low.	All																				
GBE0_CTREF	REF	GND min 3.3V max	<p>Reference voltage for Carrier Board Ethernet channel 0 magnetics center tap. The reference voltage is determined by the requirements of the Module PHY and may be as low as 0V and as high as 3.3V. The reference voltage output <b>shall</b> be current limited on the Module. In the case in which the reference is shorted to ground, the current <b>shall</b> be limited to 250 mA or less.</p>	All																				
GBE0_SDP	I/O	3.3V Suspend / 3.3V	Gigabit Ethernet Controller 0 Software-Definable Pin. Can also be used for IEEE1588 support such as a 1pps signal. See section 4.3.5 for details.	All																				