

## Features

- Up to 32-axis motion control
- Up to 64 slave module
- Slave operation (SDO, PDO)
- Axis homing
- Axis position, velocity control
- Axis synchronized motion (E-GEAR, E-CAM)
- Virtual axis
- Multi group motion control
- Multi-axis linear interpolation
- 2/3 axis circular interpolation
- Helical interpolation
- On board DI/DO
- On board encoder with compare trigger output
- Support CiA402 driver and ICP DAS stepper motor driver motion control API
- Support ICP DAS slave module DI/DO, AI/AO
- Hardware emergency stop



## Introduction

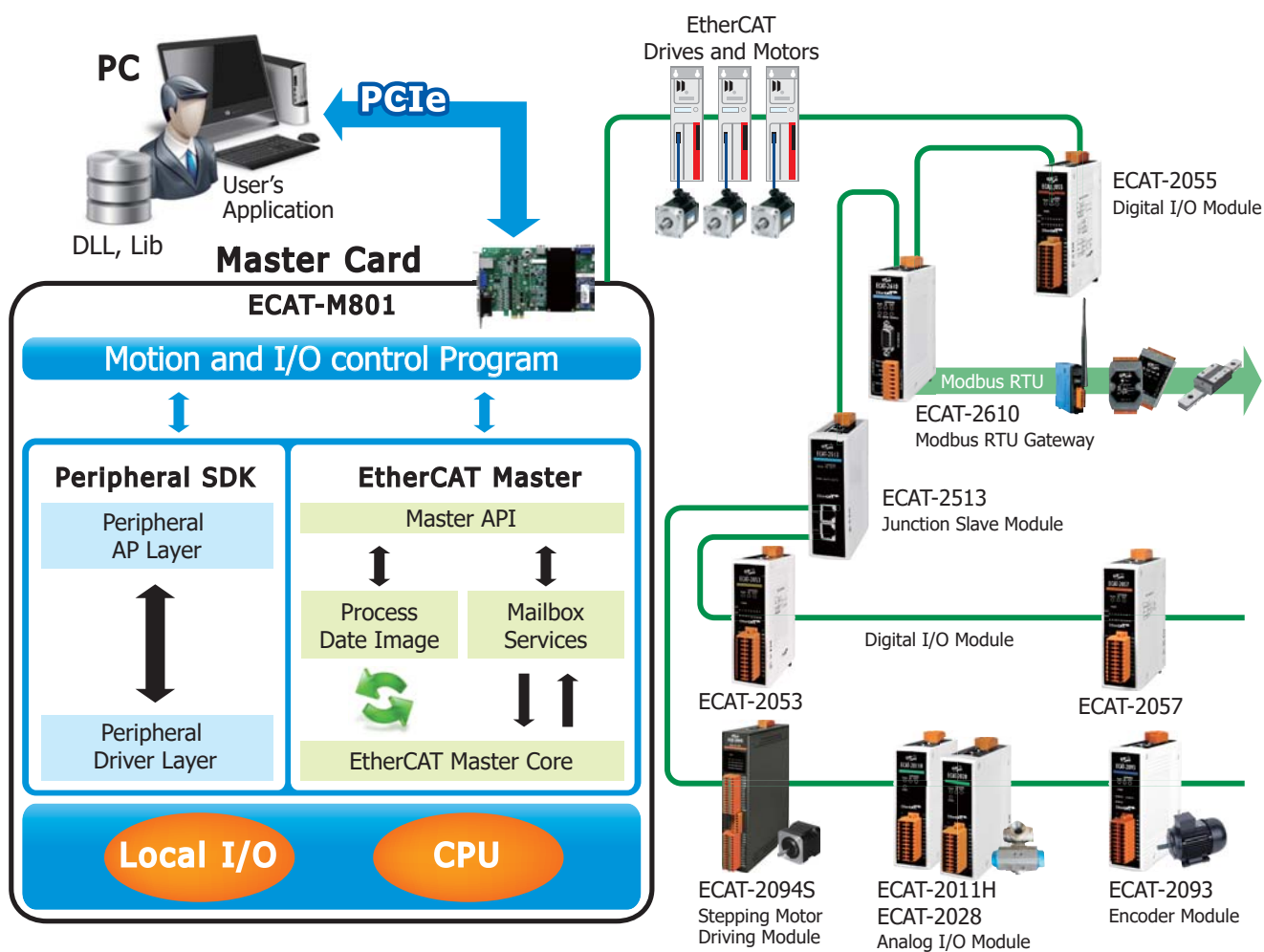
EtherCAT (Ethernet for Control Automation Technology) is an open, high-performance fieldbus system that makes Ethernet technologies available at the I/O level. EtherCAT provides flexible wiring, fast communication and many other nice features. It needs a master to control many slaves. ICP DAS provides PC master cards, for users to build their applications including motion control. These cards can offer multi-axis motion and I/O control functions by their own built-in CPU. In this way, the CPU loading of PC can be reduced dramatically. In the mean while, ICP DAS also provides many I/O slave modules for users to choose from. Since EtherCAT technology is an industrial standard, those modules can work together in a system with 3rd-party EtherCAT slaves as well.

## Hardware Specifications

Model	ECAT-M801-8AX	ECAT-M801-16AX	ECAT-M801-32AX
<b>Communication Interface</b>			
Ethernet Port	1 x RJ-45, 100 BASE-TX		
Protocol	EtherCAT		
Data Transfer Medium	Ethernet/EtherCAT Cable (Min. CAT 5), Shielded		
No. of Slave Node	Max. 64		
No. of Motion Control	Max. 8	Max. 16	Max. 32
<b>General</b>			
Bus Type	PCI Express x1		
Connector	RJ45 x1 DB-26 (Female) DB-15 (Female)		
Operating Temperature	05°C~+605°C		
Storage Temperature	-20°C~+70°C		
Humidity	0 ~ 90% RH, Non-condensing		
Dimensions (L x W x D)	192 mm x 135 mm x 21.5 mm		
<b>Digital Output</b>			
Channels	13		
Type	Sink (open collector)		
Load Voltage	+24 V		
Max. Load Current	100 mA/ch		
Isolation Voltage	3000 Vrms		

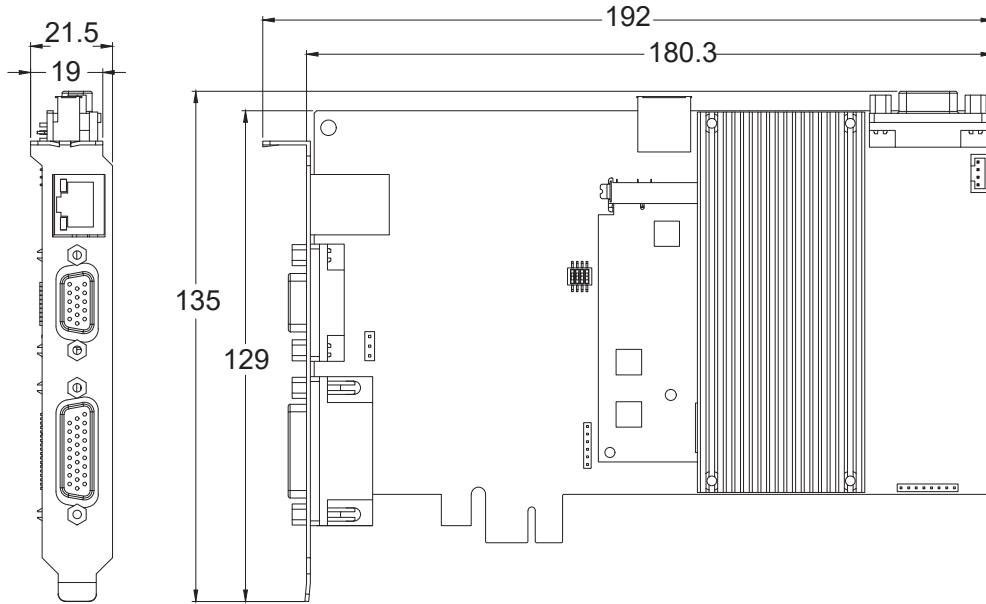
Model	ECAT-M801-8AX	ECAT-M801-16AX	ECAT-M801-32AX
<b>Digital Input</b>			
Channels	13		
Type	Wet (Sink/Source)		
On Voltage Level	+19 V ~ + 24 V		
Off Voltage Level	+11 V Max.		
Isolation Voltage	3000 V		
<b>Encoder</b>			
Axis	2		
Type	Quadrant, CW/CCW, Pulse/Dir.		
Speed, Resolution	1 MHz, 32-bit		
Compare Trigger Output	2-ch		

**Applications**



ECAT-M801

## ☑ Dimensions (Units : mm)

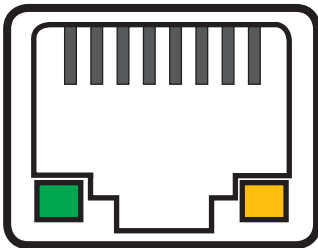


Left View

Front View

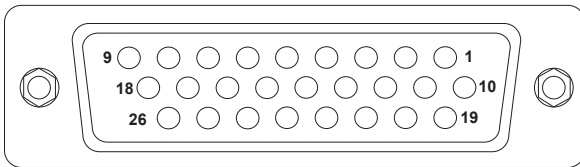
## ☑ Pin Assignments

### RJ1



### CON1

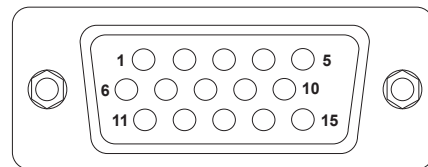
#### 26-pin Female D-sub Connector



Pin Number	Pin Assignment	Pin Number	Pin Assignment	Pin Number	Pin Assignment
1	DI0	10	DO0	19	DI8
2	DI1	11	DO1	20	DI9
3	DI2	12	DO2	21	DI10
4	DI3	13	DO3	22	DI11
5	DI4	14	DO4	23	DO8
6	DI5	15	DO5	24	DO9
7	DI6	16	DO6	25	DO10
8	DI7	17	DO7	26	DO11
9	EXT. GND	18	EXT. PWR		

### CON2

#### 15-pin Female D-sub Connector



Pin Number	Pin Assignment	Pin Number	Pin Assignment	Pin Number	Pin Assignment
1	1A-	6	1A+	11	CMP 1+
2	1B-	7	1B+	12	CMP 1-
3	2A-	8	2A+	13	CMP 2+
4	2B-	9	2B+	14	CMP 2-
5	EXT GND	10	DI12	15	DO12

**Wire Connections**

**Digital Input**

Digital Input	Readback as 1 +19 ~ +24 VDC	Readback as 0 OPEN or < 11 VDC
Sink		
Source		

**Digital Output**

Digital Output	ON State Readback as 1	OFF State Readback as 0
Driver Relay		
Resistance Load		

**Encoder**

Counter Type	Counter Type	Counter Type																																				
A/B Phase	CW/CCW	Pulse/Dir																																				
<table border="1"> <tr><td>xA+</td><td>⊖</td><td>xA+</td></tr> <tr><td>xA-</td><td>⊖</td><td>xA-</td></tr> <tr><td>xB+</td><td>⊖</td><td>xB+</td></tr> <tr><td>xB-</td><td>⊖</td><td>xB-</td></tr> </table>	xA+	⊖	xA+	xA-	⊖	xA-	xB+	⊖	xB+	xB-	⊖	xB-	<table border="1"> <tr><td>CW+</td><td>⊖</td><td>xA+</td></tr> <tr><td>CW-</td><td>⊖</td><td>xA-</td></tr> <tr><td>CCW+</td><td>⊖</td><td>xB+</td></tr> <tr><td>CCW-</td><td>⊖</td><td>xB-</td></tr> </table>	CW+	⊖	xA+	CW-	⊖	xA-	CCW+	⊖	xB+	CCW-	⊖	xB-	<table border="1"> <tr><td>Pulse+</td><td>⊖</td><td>xA+</td></tr> <tr><td>Pulse-</td><td>⊖</td><td>xA-</td></tr> <tr><td>Dir+</td><td>⊖</td><td>xB+</td></tr> <tr><td>Dir-</td><td>⊖</td><td>xB-</td></tr> </table>	Pulse+	⊖	xA+	Pulse-	⊖	xA-	Dir+	⊖	xB+	Dir-	⊖	xB-
xA+	⊖	xA+																																				
xA-	⊖	xA-																																				
xB+	⊖	xB+																																				
xB-	⊖	xB-																																				
CW+	⊖	xA+																																				
CW-	⊖	xA-																																				
CCW+	⊖	xB+																																				
CCW-	⊖	xB-																																				
Pulse+	⊖	xA+																																				
Pulse-	⊖	xA-																																				
Dir+	⊖	xB+																																				
Dir-	⊖	xB-																																				

**Ordering Information**

<b>ECAT-M801-8AX</b>	EtherCAT Master, Max. 8-Axis Synchronously, 13-channel Digital I/O, 2-Axis Encoder
<b>ECAT-M801-8AX/S</b>	EtherCAT Master, Max. 8-Axis Synchronously, 13-channel Digital I/O, 2-Axis Encoder Including a DN-26, a CA-1515M and a CA-2615M
<b>ECAT-M801-16AX</b>	EtherCAT Master, Max. 16-Axis Synchronously, 13-channel Digital I/O, 2-Axis Encoder
<b>ECAT-M801-16AX/S</b>	EtherCAT Master, Max. 16-Axis Synchronously, 13-channel Digital I/O, 2-Axis Encoder Including a DN-26, a CA-1515M and a CA-2615M
<b>ECAT-M801-32AX</b>	EtherCAT Master, Max. 32-Axis Synchronously, 13-channel Digital I/O, 2-Axis Encoder
<b>ECAT-M801-32AX/S</b>	EtherCAT Master, Max. 32-Axis Synchronously, 13-channel Digital I/O, 2-Axis Encoder Including a DN-26, a CA-1515M and a CA-2615M

**Accessories**

<b>DN-26</b>	15-pin and 26-pin Din-Rail mounting I/O connector board
<b>CA-1515M</b>	DB-15 Male (D-sub) to DB-15 Male (D-sub) cable. 1.5 M (180°)
<b>CA-2615M</b>	DB-26 Male (D-sub) to DB-26 Male (D-sub) cable. 1.5 M (180°)