

EtherCAT®



**ECAT-M801**  
EtherCAT Master

**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**

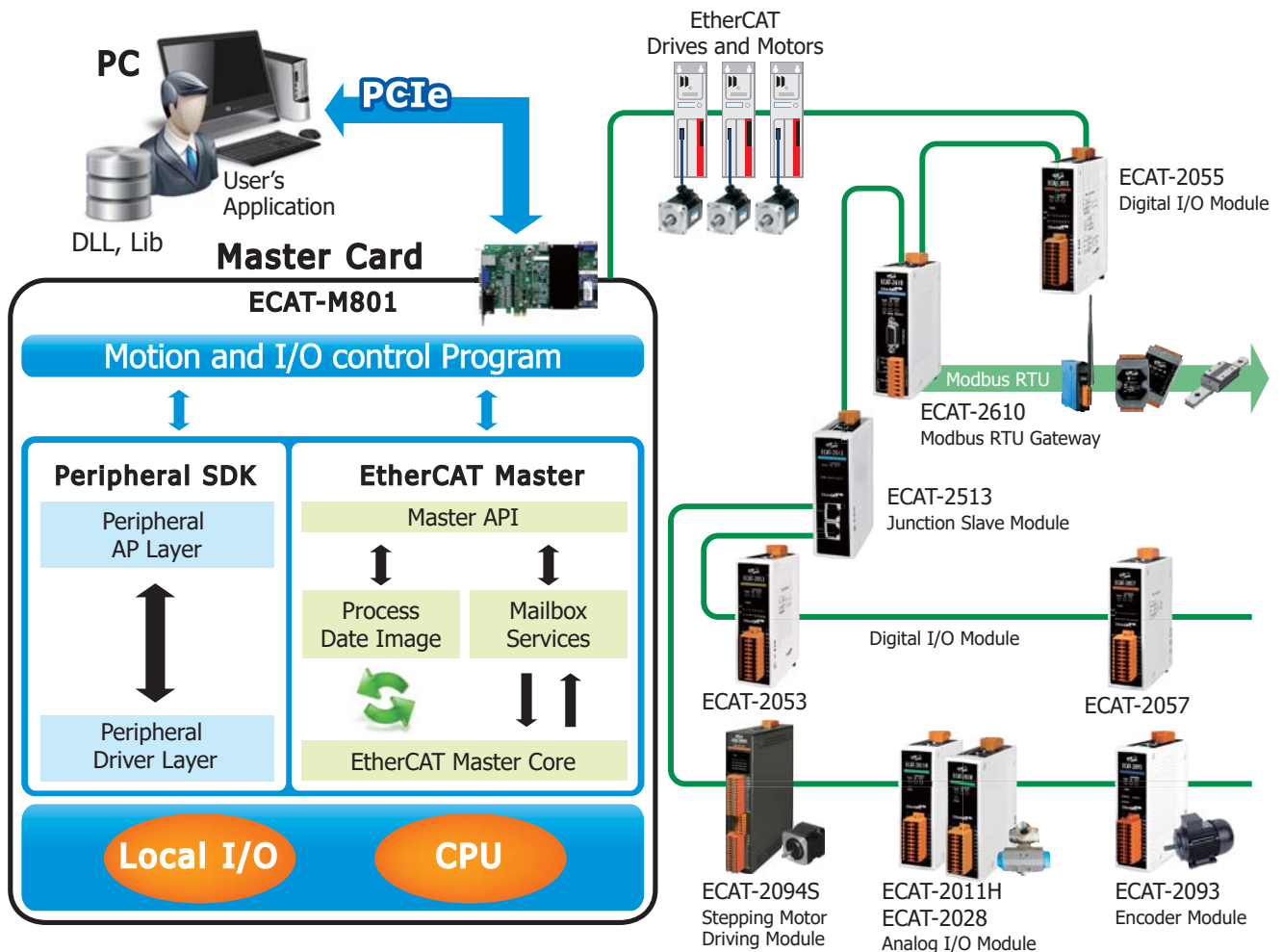
EtherCAT (Ethernet for Control Automation Technology) is an open, high-performance fieldbus system that makes Ethernet technologies available at the I/O level. EtherCAT provides flexible wiring, fast communication and many other nice features. It needs a master to control many slaves. ICP DAS provides 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**

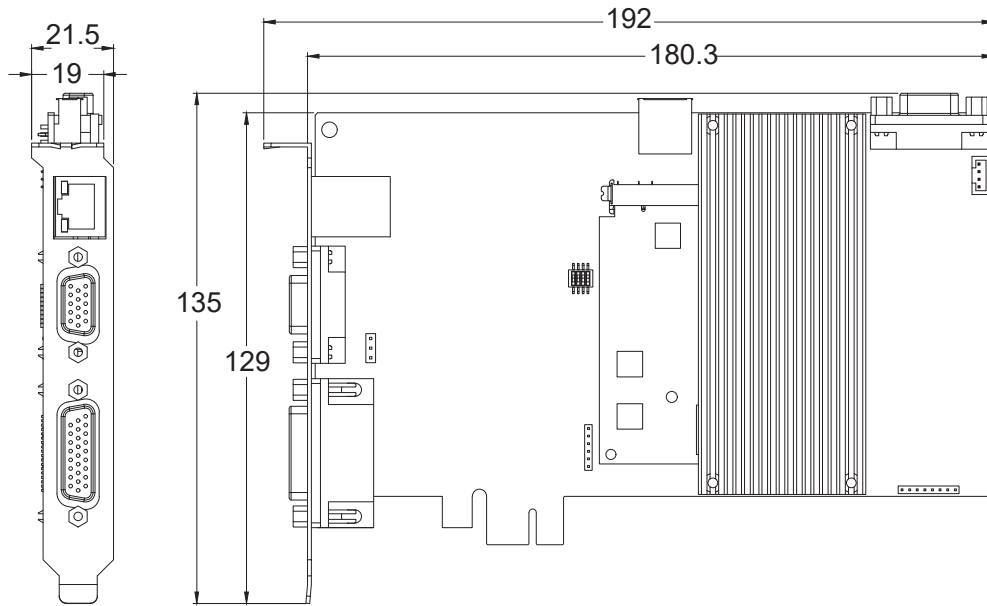
Model	ECAT-M801-8AX	ECAT-M801-16AX	ECAT-M801-32AX
<b>Communication Interface</b>			
Ethernet Port	1 x RJ-45, 100 BASE-TX		
Protocol	EtherCAT		
Data Transfer Medium	Ethernet/EtherCAT Cable (Min. CAT 5), Shielded		
No. of Slave Node	Max. 64		
No. of Motion Control	Max. 8	Max. 16	Max. 32
<b>General</b>			
Bus Type	PCI Express x1		
Connector	RJ45 x1 DB-26 (Female) DB-15 (Female)		
Operating Temperature	0°C ~ +60°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



### ■ Dimensions (Units : mm)

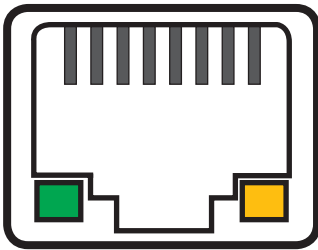


Left View

Front View

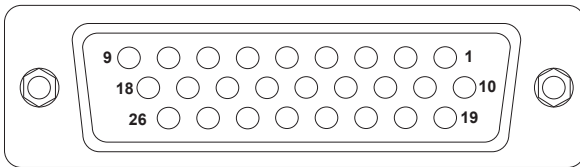
### ■ Pin Assignments

#### RJ1



#### CON1

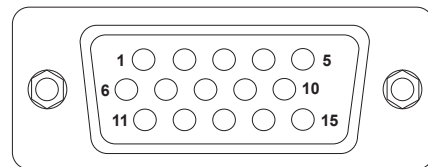
#### 26-pin Female D-sub Connector



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

### 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	xA+		CW/CCW	CW+		
	xA-			CW-		
	xB+			CCW+		
	xB-			CCW-		
				Pulse/Dir	Pulse+	
					Pulse-	
					Dir+	
					Dir-	

## 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°)