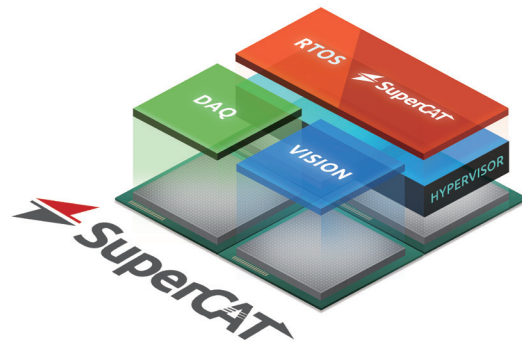# SuperCAT v1.1

EtherCAT SoftMotion Controller

Highlights

- Software EtherCAT MainDevice combines the EtherCAT protocol, IO control, and motion control with a short lead time
- Supports a 125μs EtherCAT control cycle and up to 128 axes motion control with one PC
- Fast and stable applications run in a real-time environment
- Run MCP2 and multiple applications at the same time to fine-tune m/c UPH
- User task programming runs in SuperCAT RTOS

Key Features

- EtherCAT open standard protocol CiA402 compliance for motion control
- Supports 2D coordination bias compensation for high-precision movement
- App management and execution in a real-time environment via user task programming function and GUI
- 16 axes linear interpolation and 3D spiral
- Real-time processing and EtherCAT MainDevice achieved by allocating one CPU core, memory and LAN port
- Supports APS SDK for machine automation, compatible with ADLINK motion controller products
- Lowest jitter (<20μs) by fine-tuning SuperCAT controller
- Rotary scales support all standard EtherCAT drives

Introduction

ADLINK SuperCAT is an EtherCAT SoftMotion controller capable of supporting up to 128 synchronized axes and over 10,000 points simultaneously. SuperCAT fully supports ADLINK EtherCAT subdevices for high-speed trigger, latch, I/O, and pulse train motion control, designed for laser and semiconductor applications. It features a built-in software trigger and latch function operating at up to 4 kHz for applications such as AOI, dispensing, and EMS manufacturing. Optimal jitter control is achieved with minimal cycles of 125μs, enhancing synchronous I/O performance for vertical automation applications in the semiconductor and electronics manufacturing industries, among others.

SuperCAT provides an off-the-shelf application-ready (APS) function library to generate multi-dimensional, highly synchronized, time-deterministic event-triggered motion and I/O control. A wide range of compatible third-party subdevices can be easily controlled using ADLINK's APS function library. ADLINK's Motion Creator Pro 2™ utility is fully compliant with the Microsoft® Windows™ environment, allowing comprehensive EtherCAT motion and I/O configuration, function evaluation, and process download functions.

System Requirements

- Operating System: Windows 10/11 32/64-bit
- Processor: x86 Atom, Core i, or Xeon
- Network Interface: 100/1000BASE-T Ethernet port

Ordering Information

- **EM-xP00**
  SuperCAT virtual license for Classic version

- **EM-xC00**
  SuperCAT virtual license for Premium version

- **EM-xA00**
  SuperCAT virtual license for Ultimate version

- **EM-xP00D**
  SuperCAT dongle license for Classic version

- **EM-xC00D**
  SuperCAT dongle license for Premium version

- **EM-xA00D**
  SuperCAT dongle license for Ultimate version

Note:
x = 2: supports 16 axes motion control   x = 8: supports 64 axes motion control
x = 4: supports 32 axes motion control   x = F: supports 128 axes motion control

SuperCAT is available for different platforms.
SuperCAT performance depends on the configuration and the technical data of the
ADLINK IPC (including the processor).
125μs EtherCAT control cycle only guaranteed with ADLINK-specific platforms.

Specifications

Function	Mode	Classic EM-xP00	Premium EM-xC00	Ultimate EM-xA00
Single Axis Motion	P2P	V	V	V
	Position/Velocity override	V	V	V
	Blending mode	V	V	V
	Homing	V	V	V
	Motion IO mapping	V	V	V
Multi-Axis Motion	Linear interpolation	V	V	V
	2D circular interpolation	-	V	V
	3D circular interpolation	-	-	V
	Spiral/Helical	-	-	V
	Gantry/E-Gear	-	V	V
	Gantry/E-Gear homing	-	V	V
	Blending mode	V	V	V
	Linear continuous interpolation	V	V	V
	2D circular interpolation	-	V	V
	3D circular interpolation	-	-	V
	Spiral/Helical	-	-	V
	Continuous interpolation Roll back/Dwell	-	V	V
	Continuous interpolation synchronized DO control	-	-	V
	PVT	-	V	V
	T-curve	V	V	V
Speed Profile	S-curve	V	V	V
	Pitch error compensation	V	V	V
Compensation	Backlash compensation	V	V	V
	2D mesh compensation	V	V	V
	P2P	V	V	V