

Top 100  
Global  
Innovator  
for 10 years

# XGT Series

## XGI-CPUZ



**LS** ELECTRIC

# XGT Series XGI-CPUZ

A Solution Beyond Sequence Control



The next generation solution featuring high processing power, compact size and strong engineering environment



## All in One CPU

Sequence, motion, and IT/OT integrated CPU



## Connectivity

Featuring various communication environments and security solution



## Diagnostics

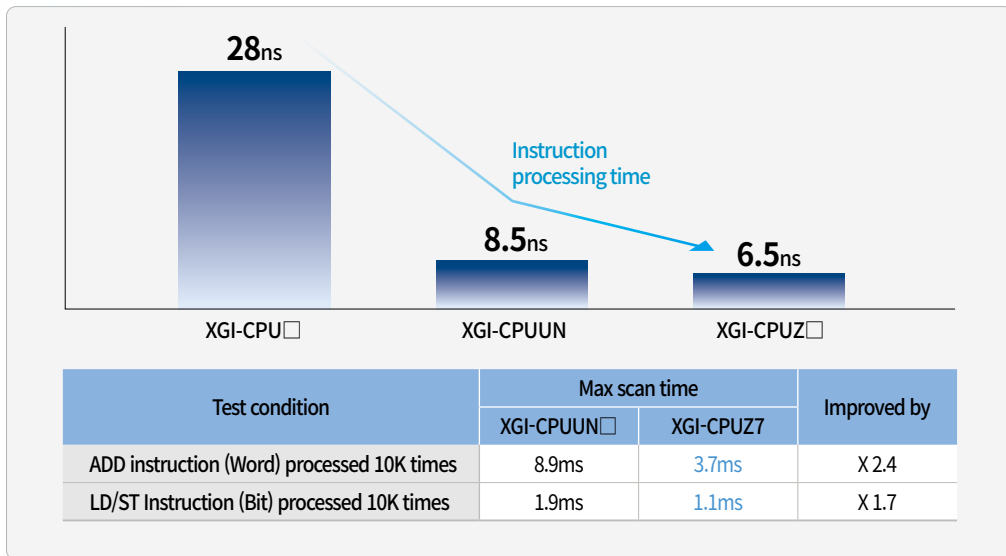
On-site maintenance and data backup available



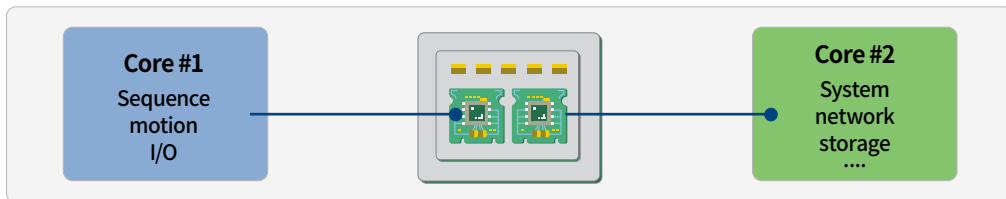
All in One CPU

### Improved Sequence Control

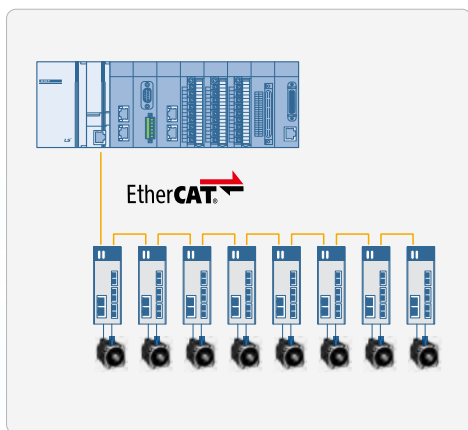
Parallel processing of the multicore CPU minimizes the influence of communication load on sequence control.



SCAN time improved by 2-3 times



### Motion Control



#### Built-in EtherCAT Master

- Connection with servo driver and I/O devices
- Max 64 slave supported (Servo driver)
- Network expansion system through connectivity with Smart I/O
- ENI-based slave auto scan
- Diagnostic information monitoring supported via ESQ

#### CoE (CANopen over EtherCAT) supported

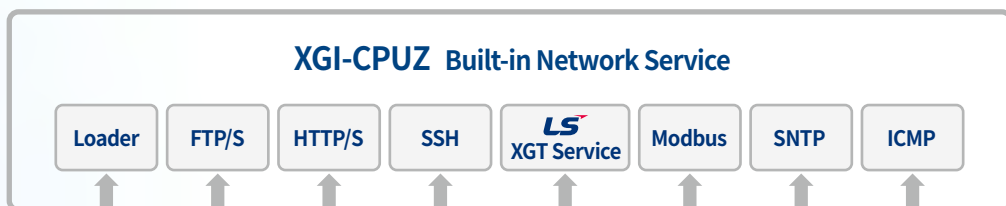
- CiA402 profile

#### FoE (File access over EtherCAT) supported

- Central firmware update function for servo  
(Supported product lineup will be expanded)

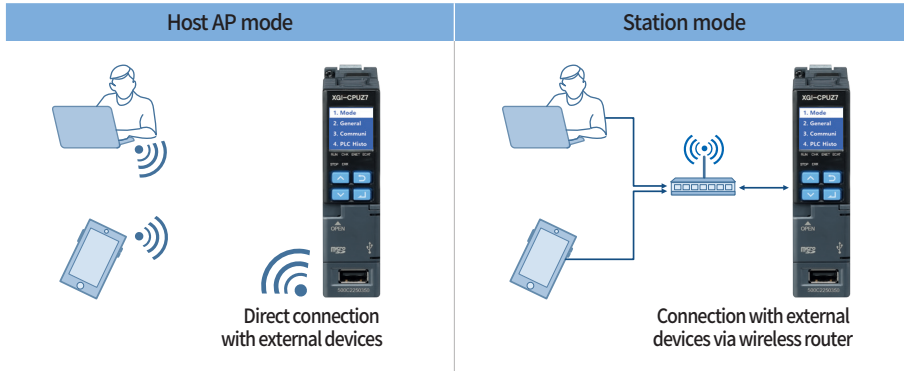
### Network Services

Built-in communication functions supported with Ethernet port and Wi-Fi dongle



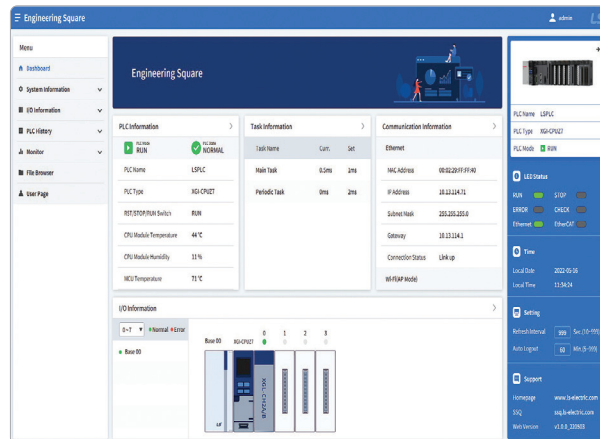
## Wi-fi Dongle

XG5000, FTP server, Firewall, Web server, and Ping test services accessible through Wi-Fi

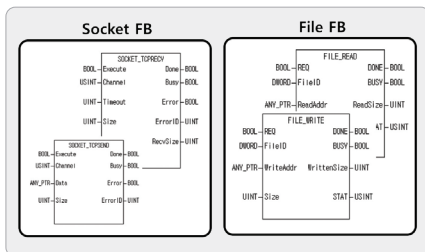


## Web-based Engineering Solution Square

- Convenient monitoring function suitable for various customer environments
- User ID/authentication setting provided (Admin/user)
- TLS-based HTTPS security protocol supported
- User webpage environment provided
- Remote file transfer to/from SD memory card using file browser
- I/O Information, PLC status/history monitor

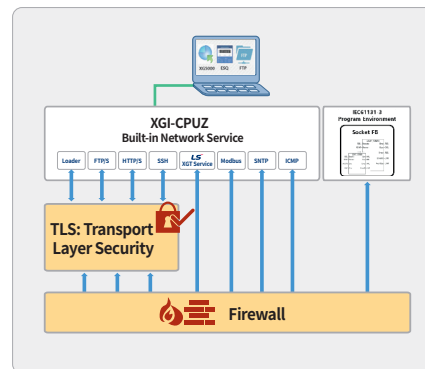


## Core Function Block for IT Connectivity



- Network and file related core function blocks provided for establishing IT connectivity
- Socket FB: UDP/TCP based Ethernet protocol
- File FB: Access to SD memory card file
- Various program examples will be provided
- Can be applied together with user defined FB to create high-level user library

## Secure Communication Environment



- TLS-based security protocol supported: Loader-Ethernet, loader-USB, FTPS, and HTTPS
- High-level firewall mounted: Access can be limited based on MAC/IP address and port No.

# Diagnostics

## Built-in UI

- Instant on-site diagnosis without XG5000 connection
- Setting and diagnostics information provided: memory usage, network setting information, error code/history, and more
- Excellent visibility with OLED implementation
- Saving space by replacing HW switch: M.Exch, D.CLR, etc.

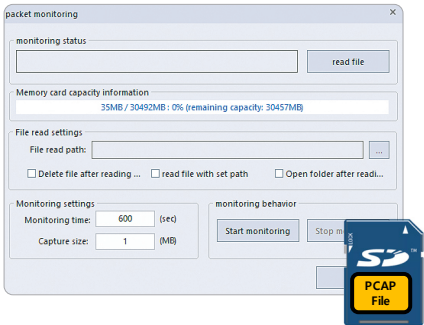
## SD Memory

Project file can be backed-up/restored without XG5000

- Project backup/restore
- Error history export
- Firmware update

## Ethernet Packet Logger

- Provides PCAP file format packet capture function for Ethernet devices
- Compatible with 3rd party analysis programs such as wireshark
- No additional equipment or wiring for packet capture is required



## System Information

- MCU temperature, PCB temp/humidity sensor built-in
- Temp/humidity information provided with system flag
- Data can be utilized as basic information for predictive maintenance by connecting with high-level systems

## Multi-user Access and Online Editing

Max. 4 users  
USB  
Ethernet  
WiFi

- Multiple users can access XG500 via USB/Ethernet/WiFi
- Number of simultaneous connection: Max. 4 (Ethernet+WiFi: 3, USB: 1)
- Online editing supported.
- Each user can lock a PB and enter online editing
- Single user can lock multiple PBs

# Performance Specification

Item		XGI-CPUZ7	XGI-CPUZ5	XGI-CPUZ3	Note	
Operation method		Main task/Cycle task: Fixed period and cyclic operation Initialization task: Only once at the time of entering the RUN				
Control cycle		Main task time: 1ms ~ 1,000ms (1ms unit setting) Cycle task time: Multiple setting of main task (2~4,000ms)				
I/O control method		Synchronism with main task cyclic (Refresh method)				
Program language		Ladder diagram SFC (Sequential Function Chart) ST (Structured Text), G code				
Calculation processing speed (Basic Instructions)	Default(LD)	6.5 ns/command			6.5 ns/command	
	MOVE	5.2 ns/command			5.2 ns/command	
	Real calculation	±: 31 ns (S), 121 ns (D) x: 31 ns (S), 119 ns (D) ÷: 34 ns (S), 142 ns (D)			S: Short real D: Long real Maximum performance condition	
Program memory	Capacity	10MB: sequence+motion 10MB: NC control	4MB: sequence+motion 5MB: NC control	2MB: sequence+motion 5MB: NC control		
	Quantity	Max. 256				
Configuration of program		Initial program, main task program, periodic task program, NC program				
I/O Point(Installation available)		6,144 points				
Max. I/O memory contact		131,072 points				
Command	Operator	18				
	Basic function	202				
	Basic function block	174				
	Expansion function block	Socket, file function block				
	Dedicated function block	Dedicated function blocks by special modules, dedicated function block for communication module (P2P)				
Data memory	Automatic variable(A)	4MB (2MB retain)	2MB (1MB retain)	1MB (512KB retain)		
	Input variable(I)	20KB				
	Output variable(Q)	20KB				
	Direct variable	M	2MB (1MB retain)	1MB (512KB retain)	512KB (256KB retain)	
		R	64KB x 32 block			
		W	2MB			Same area as
	Flag variable	F	128KB			System flag
		K	18KB			PID operation area
		L	22KB			High speed link flag
		N	49KB			P2P parameter
U		8KB			Analog data refresh area	
FLASH area		4 MB, 64 block			Control by R device	
Timer		No restriction on points Time range: 0.001~ 4,294,967.295sec (1,193hour)			Occupying 20 Byte of automatic variable area per point	
Counter		No restriction on points Coefficient range: 64 bit range			Occupying 20 Byte of automatic variable area per point	
Operation mode		RUN, STOP				
Restart mode		Cold, Warm				
Self-diagnosis function		Cyclic error monitoring, time share over detection of task program, detection of operation delay,memory error, input and output error, power error, etc.				
How to preserve data in case of power failure		Retain area setting in basic parameters or retain setting when setting variables				
Maximum extension base		7				
Motion control	Real/Virtual axes	Axis 32	Axis 16	Axis 8		
	Dedicated virtual axis	Axis 4	Axis 2	Axis 1		
	Slave (Real axis)	64 Slave	32 Slave	16 Slave		
	Communication	EtherCAT (CoE: CANopen over EtherCAT, FoE: File Access over EtherCAT)				
	Communication period	Same as the main task cycle				
	Servo drive support	Servo drive to support EtherCAT CoE				
	Control unit	pulse, mm, inch, degree				
	Control method	Position/velocity/torque (Servo drive support), synchronous, interpolation control				
	Position address range	± LREAL, 0				
Speed range	± LREAL, 0					

Item		XGI-CPUZ7	XGI-CPUZ5	XGI-CPUZ3	Note	
Motion control	Torque unit	Rated torque % designation				
	Acc./Dec. processing	Trapezoid type, S-type (Setting by specifying Jerk at a function block)				
	Range of Acc./Dec.	+ LREAL <sup>*Note1</sup> , 0				
	Manual Operation	Manual operation				
	Cam operation	32 profiles/32,768 points	16 profiles/16,384 points	8 profiles/8,192 points		
	Absolute position system	Available (When using an absolute encoder type servo drive)				
	Com- muni- ca- tion	Protocol	EtherCAT			
		Support specification	CoE (CANopen over EtherCAT), FoE (File Access over EtherCAT)			
		Physical layer	100BASE-TX			
		Communication speed	100Mbps			
		Topology	Daisy chain			
		Communication cable	Cat. 5 STP (Shielded twisted-pair) cable			
		Synchronous jitter between slaves	Less than 1 μs			
		Constant period communication	PDO (Process Data Object) Mapping through CoE			
		Non-synchronous communication	SDO (Service Data Object) communication through CoE			
		Max.transmission distance	100 m			
	Indicates the communication status	Front LED				
	External input/output (EtherCAT Remote I/O)	Max. 64 slave supported	Max. 32 slave supported	Max. 16 slave supported		
Coordinate system function (Robot)	Support robot	Cartesian, delta				
	Setting	XG5000				
	Control language	Function Block				
External memory	Memory type	Micro SD/SDHC				
	File system	FAT32				
	Maximum capacity	Mountable maximum capacity: Up to 512GB				
	Service	Program back-up/restoration, booting operation				
USB device	Characteristics	USB2.0, 1ch				
	Service	Loader service (XG5000)				
USB host	Characteristics	USB 2.0, 1ch				
	Service	Supported devices: Wi-Fi Dongle				
Wi-Fi	Characteristics	IEEE 802.11b/g/n			USB Wi-Fi Dongle function Provided by	
	Service	Loader service (XG5000) Web Server				
Built-in communication port	Characteristics	1 Port				
		100/1000BASE-TX				
		Auto negotiation (Full-duplex and half duplex)				
		Auto MDIX crossover				
		Up to 100M distance between nodes				
	Ethernet	Use UTP, STP, FTP cable				
		Service setting in local Ethernet parameter of XG5000				
		Loader service (XG5000) (Multi-connection support, up to 4 people including USB)			Remote relay service supported Remote access service not supported	
		XGT server - dedicated communication			TCP supported UDP not supported	
		Third-party protocol support (MODBUS TCP server)				
Service	FTP server					
	NTP client					
	Web Server					
	Socket service (LS electric and third-party client service correspondence)			Socket function block		
Security	Project password TLS support: Loader service, Web server, FTP server					
Screen display	Character display					
Internal consumption current	1.3A					
Weight	230g					

\*Note1) LREAL range: 2.2250738585072e-308 ~ 1.79769313486232e+308  
 Long real number(+ LREAL) positive range: 0 < x ≤ 1.79769313486232e+308

**XGT Series  
XGI-CPUZ**



- 1 Display**  
Indicates the operation status and parameter settings of the CPU module in text
- 2 LED**  
Indicates the operating status of the CPU module
- 3 Display Control Button**  
Moves the display screen and specifies operation status
- 4 RUN/STOP Switch**  
Sets the operational mode of CPU module
- 5 Micro SD Slot**
- 6 USB Device**  
Connector to connect with peripherals (XG5000, etc.) (USB 2.0 supported)
- 7 USB Host**  
Wi-Fi USB dongle can be installed
- 8 Ethernet Port**  
Connector to connect with peripherals  
• XG5000 CPU remote connection  
• Ethernet connection
- 9 EtherCAT port**  
Connector for motion control  
• EtherCAT servo driver connection  
• EtherCAT remote I/O connection

