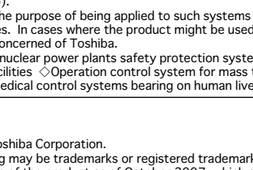
Controller

		For electric control (type 1)	For instrument control (type 2)
Program capacity		256 K steps	512 K steps
Local variable/global variable		256 K words	256 K words
I/O variable		16 k words	16 k words
Tag☐		–	Standard input/output (Process alarm management) Toshiba HMI/OIS-DS interface
Task	Fixed cycle task	Ultra high speed: 0.5 to 500 ms High speed: 0.5 to 500ms RIO: 0.5 to 500 ms Main: 0.5 to 1,000 ms	High speed: 10 to 500 ms Main: 100 to 10,000 ms
	Event☐	Event: 8 I/O interrupt: 16 Note: Selective	Event: 8 I/O interrupt: 16
Task switching time		60μs or less	
Processing performance		Bit Contact: 20 ns	
		Integer Transfer: 20 ns Addition/subtraction: 20 ns	
		Floating Point Addition: 120 ns Multiplication: 120 ns	
Program language☐		Four languages compliant with the IEC 61131-3 standard	

Surveillance and Control Network 1 Gbps Ethernet

Topology	Star wiring
Ethernet frame	DIX type
No. of nodes	254 maximum/system (Single transmission line)
No. of repeater hubs☐	10BASE-T: 4 maximum (serial connection)
	100BASE-TX: 2 maximum (serial connection)
	1000BASE-T: 1 maximum
No. of LAN switches ☐	No limits on the number of connecting switches
No. of Ethernet modules to be installed☐	4 transmission modules maximum



Controller base unit

Inter-Controller Networ Real-Time Ethernet TC-net 100

Hub-to-station distance	2 km
Cable	Multi-mode optical fiber
Configuration☐	Single transmission line/dual transmission line
Topology☐	Star
Transmission mode☐	Scan transmission
	High-speed cycle: 1 ms to 160 ms
	Medium-speed cycle: 10 ms to 1,000 ms
	Low-speed cycle: 100 ms to 10,000 ms
	Message transmission
	TCP/UDP/IP/ARP/ICMP
Scan transmission capacity☐	128 KW/system
	2048 blocks/system (64 W/block)
	Transmission capacity/node High speed: 64 blocks Medium speed: 128 blocks Low speed: 384 block
Status change detection	No. of status change detecting words: 128 KW
	Change detecting cycle: No. of detecting words x 30μs
	Detecting signal intervals: 50 ms or more
No. of connecting nodes	254 maximum/system

High-Speed Serial I/O System TC-net I/O

	Electrical	Optical
Topology	Duplex loop (transmission, reception)	
Transmission rate	100 Mbps	
I/O interface	32 nodes/loop	
I/O module	16 modules/node	
Transmission cable	Category 5 twisted-pair cable with shield	Optical fiber cable GI 50/125
Maximum cable length	10 m	2 km
Overall cable length	100 m maximum☐	4 km maximum
Scan cycle	High-speed scan: 100μs or more	
	Medium-speed scan: 1 ms or more	
Redundancy	Detour control in case of transmission line disconnections Duplex configuration of duplex loops available	

TC-net I/O group

Engineering Tool Ver. 4

Model		type 1/type 2
Operating environment☐	Hardware	Hardware PC/AT compatible
	OS	Windows XP Professional SP1 or up (standalone version, client end) Windows Server 2003 or up (server end)
Program language		Four languages compliant with IEC 61131-3 LD (Ladder), FBD (Function Block Diagram), SFC (Sequential Function Chart), ST (Structured Text)
Controller interface		Ethernet
Type of use		Standalone/client server
Supported languages		Japanese, English, Chinese (planned)

Program editor(Text)

⚠ Safety precautions

●Toshiba will bear no responsibility whatsoever for damage arising from the use or unusability of the product (loss of business profit, interruption of business, loss of business information, or other monetary losses, but not limited thereto).
●The product is not manufactured for the purpose of being applied to such systems as mentioned below which require safety of human lives. In cases where the product might be used for such applications, contact the sales section concerned of Toshiba.
Example ◇Main unit control system for nuclear power plants safety protection systems and other important safety systems for nuclear facilities ◇Operation control system for mass transportation systems, air traffic control systems ◇Medical control systems bearing on human lives

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TOSHIBA
TOSHIBA CORPORATION
INDUSTRIAL SYSTEMS COMPANY

Industrial Systems Division
Control & Instrumentation Equipment's Sales Department
Sales Group 1 TEL.: +81-3-3457-4894
1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001, Japan
Microelectronics & System Components Department
- System Components Support Group TEL.: +81-42-333-2192
1, Toshiba-cho, Fuchu-shi, Tokyo 183-8511, Japan

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Leading Innovation »»»

True high-speed robust control ! True location-free system configuration ! Reliable Networking

Unified Controller nv Series

THE SCOPE OF APPLICATIONS OF THE NEW CONTROLLERS EXTENDS BEYOND SEQUENCE CONTROL (PLC) AND PROCESS CONTROL (DCS) TO COVER POWER GENERATION, TRANSFORMATION, AND OTHER ELECTRIC FIELDS.

New-Generation Navigator

Unified [Speedy and reliable]
The software designed to suit a specific field is installed in the hardware unified on a common platform.
Hardware design quality improved and software optimized.

Unified [Speedy and flexible]
The high-speed serial I/O system, TC-net I/O, permits a duplex loop configuration at a transmission rate of 100 Mbps for the first time for an industrial controller, integrating I/O systems into one.

New-Generation Navigator
Unified Controller nv Series

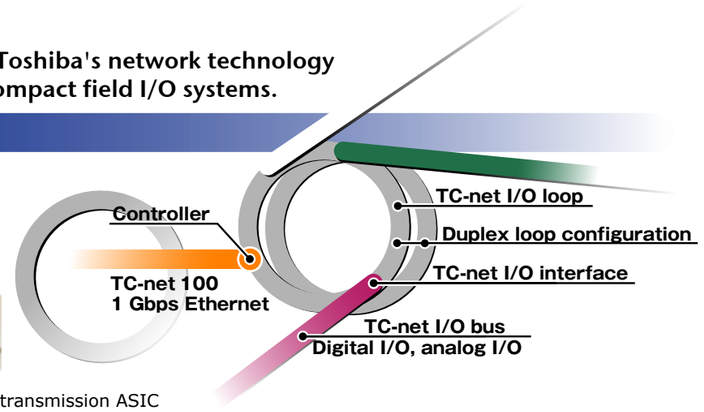
SPEEDY Flexible Networking

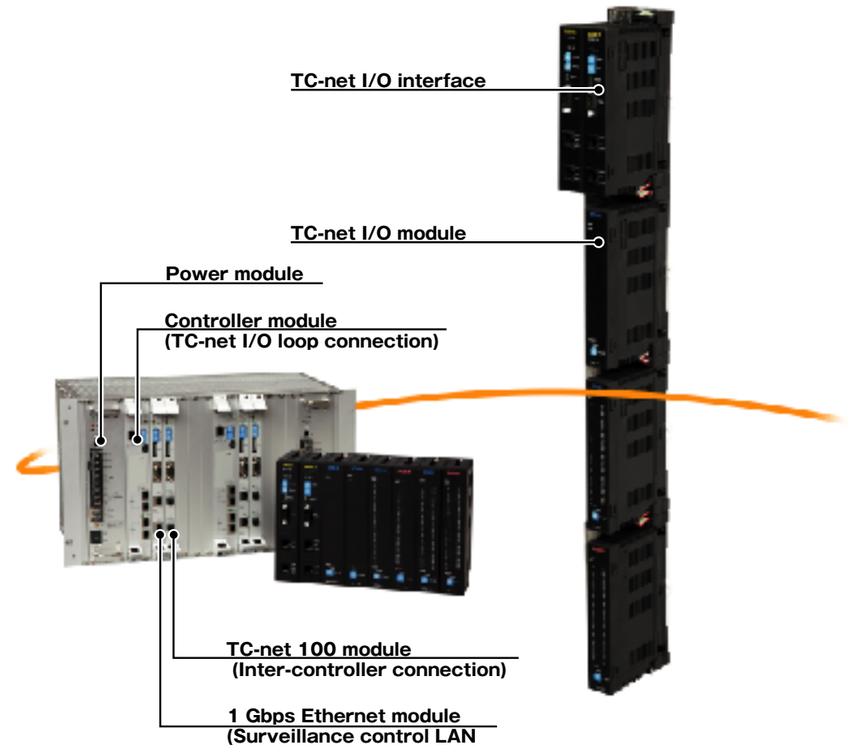
I/O Integrated on the basis of Toshiba's network technology
TC-net I/O opens the way to compact field I/O systems.

High-speed serial I/O system, TC-net I/O

The high-speed serial I/O system TC-net I/O is the first field I/O system that permits duplex loop configuration at a transmission rate of 100 Mbps. It is applied for the first time in this sector of industry. It is a new-generation I/O system that offers compatibility of the high-speed performance of electric control with maintainability. High-speed data collection at 0.1 ms minimum is now possible with this system.
Toshiba's Real-Time Ethernet (TCnet) network technology is implemented in ASICs, which are installed in the controller module and TC-net I/O interface.

TC-net transmission ASIC
(Controller module)





1 Gbps Ethernet control LAN

A 1 Gbps Ethernet is applied as control LAN and TC-net 100 as inter-controller network. It is an open network easy to be connected to existing models.
The TCnet network technology was published as IEC 61784-2/IEC61158 in 2007.

Online maintenance

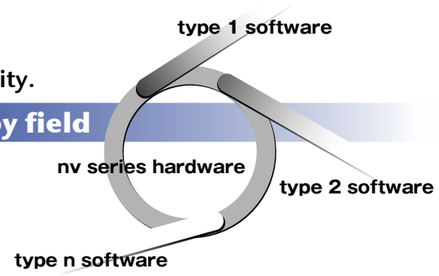
The high-speed serial I/O system, TC-net I/O, is capable of collecting 1-ms high-speed scan data and offers ease of free layout of field units. It features I/O module online swap and easy online maintenance environment.

SPEEDY and Reliable

Sure speed leads to a higher level of control and to product reliability and high quality.

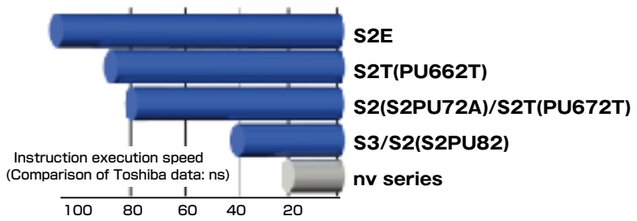
Common platform and software optimized field by field

The same hardware is applied as a common platform, where software suited to a specific field is installed. Electric control (type 1) and instrument control (type 2) are available in a series.
The unified design of hardware improves design quality, while optimized software assures high reliability and security.



IEC language direct executing processor is built in for executing high-speed instructions at 20 ns

A language processor that directly executes instructions in the international standard language IEC 61131-3 is mounted. High-speed processing at a maximum speed of 20 ns is available; sophisticated multi-task processing is combined with high-speed control period (0.5 ms minimum) for total improvement of system performance. ECC memory, duplex system, and optimized duplex tracking time assure reliability in speedy performance.



Language processors for
IEC language direct execution

SPEEDY Transition of Technologies

The technological assets of the V-series and existing systems are handed down to the future.

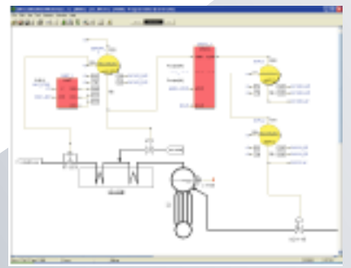
IEC 61131-3 Program Languages Supported

IEC program languages, LD (Ladder), FBD (Function Block Diagram), SFC (Sequential Function Chart) and ST (Structured Text), are supported. The symbols can be customized and can coexist with symbols peculiar to specific fields, and an efficient engineering environment easy to comprehend is available.

Seamless Fusion with Existing Systems

The application programs, user-defined functions, and user-defined function blocks of the existing V-series engineering tool (V-Tool 3) can be directly used.
The XML import/export provides a more open engineering environment.

Custom symbol editor



Full graphic editor