

SIEMENS 6ES7511-1CK00-0AB0 PROFINET IRT WITH 2-PORT SWITCH, 60 NS BIT PERFORMANCE, INCL. PUSH-IN FRONT CONNECTOR, SIMAT

Basic Information

- Place of Origin: Germany
- Brand Name: SIEMENS
- Certification: CE
- Model Number: 6ES7511-1CK00-0AB0
- Minimum Order Quantity: 1
- Price: USD
- Packaging Details: 15,10 x 15,40 x 4,60
- Delivery Time: 10-12Days
- Payment Terms: L/C, T/T
- Supply Ability: 100



Product Specification

Product Description

SIEMENS 6ES7511-1CK00-0AB0 PROFINET IRT WITH 2-PORT SWITCH, 60 NS BIT PERFORMANCE, INCL. PUSH-IN FRONT CONNECTOR, SIMAT

The SIEMENS 6ES7511-1CK00-0AB0 is a central processing unit (CPU) that is part of the SIMATIC S7-1500 automation system. Here are the key details about this CPU:

PROFINET IRT with 2-Port Switch:

- This CPU has a built-in PROFINET interface with an integrated 2-port switch.
- The PROFINET interface supports the PROFINET IRT (Isochronous Real-Time) communication protocol, which enables highly synchronized and deterministic data exchange.
- The 2-port switch allows the CPU to be connected directly to other PROFINET devices without requiring an external switch.

Fast 60 ns Bit Performance:

- This CPU has a bit performance of 60 nanoseconds per bit operation.
- While not as fast as some higher-end S7-1500 CPUs, the 60 ns bit performance still provides very responsive control capabilities.

Push-In Front Connector:

- The CPU comes with a push-in front connector for the PROFINET interface.
- This push-in connector provides a convenient and tool-free way to connect PROFINET cables to the CPU.

SIMATIC Memory Card Required:

- Like other SIMATIC S7-1500 CPUs, this model requires a SIMATIC memory card to be inserted for operation.
- The memory card provides storage for the user program, configuration data, and other runtime information.

Other Features:

- Work Memory: 300 KB for program and 1 MB for data
- Part of the modular SIMATIC S7-1500 system
- Programmed using the STEP 7 engineering software

The key distinguishing features of this CPU model are the integrated PROFINET IRT interface with a 2-port switch, the fast 60 ns bit performance, and the push-in front connector.

These capabilities make the CPU 1511-1 PN a good choice for applications that require highly synchronized and deterministic industrial Ethernet communication, but may not need the extreme processing speeds of higher-end S7-1500 CPUs.

The 2-port switch and push-in connector provide convenient connectivity options, while the 60 ns bit performance still delivers responsive control for many industrial automation tasks.

Overall, the 6ES7511-1CK00-0AB0 is a versatile and capable CPU within the SIMATIC S7-1500 portfolio, well-suited for a wide range of industrial automation applications.

General information	
Product type designation	CPU 1511C-1 PN
HW functional status	FS03
Firmware version	V2.9
Product function	
● I&M data	Yes; I&M0 to I&M3
● Isochronous mode	Yes; With minimum OB 6x cycle of 625 µs (distributed)
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	V17 (FW V2.9) / V13 SP1 Update 4 (FW V1.8) or higher
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	3.45 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V; 20.4 V DC, for supplying the digital inputs/outputs
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
● Mains/voltage failure stored energy time	5 ms; Refers to the power supply on the CPU section
Input current	
Current consumption (rated value)	0.8 A; Digital onboard I/O modules are supplied separately

Inrush current, max.	1.9 A; Rated value
I^2t	0.34 A ² ·s
Digital inputs	
● from load voltage L+ (without load), max.	20 mA; per group
Digital outputs	
● from load voltage L+, max.	30 mA; Per group, without load
output voltage / header	
Rated value (DC)	24 V
Encoder supply	
Number of outputs	1; One common 24 V encoder supply
24 V encoder supply	
● 24 V	Yes; L+ (-0.8 V)
● Short-circuit protection	Yes
● Output current, max.	1 A
Power	
Infeed power to the backplane bus	10 W
Power consumption from the backplane bus (balanced)	8.5 W
Power loss	
Power loss, typ.	11.8 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
● integrated (for program)	175 kbyte
● integrated (for data)	1 Mbyte
Load memory	
● Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	
● maintenance-free	Yes
CPU processing times	
for bit operations, typ.	60 ns
for word operations, typ.	72 ns
for fixed point arithmetic, typ.	96 ns
for floating point arithmetic, typ.	384 ns
CPU-blocks	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
● Number range	1 ... 60 999; subdivided into: number range that can be used by the user: 1 ... 59 999, and number range of DBs created via SFC 86: 60 000 ... 60 999
● Size, max.	1 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
● Number range	0 ... 65 535
● Size, max.	175 kbyte
FC	
● Number range	0 ... 65 535
● Size, max.	175 kbyte
OB	
● Size, max.	175 kbyte
● Number of free cycle OBs	100
● Number of time alarm OBs	20

● Number of delay alarm OBs	20
● Number of cyclic interrupt OBs	20; With minimum OB 3x cycle of 500 µs
● Number of process alarm OBs	50
● Number of DPV1 alarm OBs	3
● Number of isochronous mode OBs	1
● Number of technology synchronous alarm OBs	2
● Number of startup OBs	100
● Number of asynchronous error OBs	4
● Number of synchronous error OBs	2
● Number of diagnostic alarm OBs	1
Nesting depth	
● per priority class	24
Counters, timers and their retentivity	
S7 counter	
● Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
● Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
S7 times	
● Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	
● Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB
Extended retentive data area (incl. timers, counters, flags), max.	1 Mbyte; When using PS 6 0W 24/48/60 V DC HF
Flag	
● Size, max.	16 kbyte
● Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
● Retentivity adjustable	Yes
● Retentivity preset	No
Local data	
● per priority class, max.	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	1 024; max. number of modules / submodules
I/O address area	
● Inputs	32 kbyte; All inputs are in the process image
● Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	8 kbyte

— Outputs (volume)	8 kbyte
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
● Number of subprocess images, max.	32
Hardware configuration	
Number of distributed IO systems	32; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
● Via CM	4; A maximum of 4 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Number of IO Controllers	
● integrated	1
● Via CM	4; A maximum of 4 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Rack	
● Modules per rack, max.	32; CPU + 31 modules
PtP CM	
● Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	
Clock	
● Type	Hardware clock
● Backup time	6 wk; At 40 °C ambient temperature, typically
● Deviation per day, max.	10 s; Typ.: 2 s
Operating hours counter	
● Number	16
Clock synchronization	
● supported	Yes
● in AS, master	Yes
● in AS, slave	Yes
● on Ethernet via NTP	Yes
Digital inputs	
integrated channels (DI)	16
Digital inputs, parameterizable	Yes
Source/sink input	P-reading
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Digital input functions, parameterizable	
● Gate start/stop	Yes
● Capture	Yes
● Synchronization	Yes
Input voltage	
● Type of input voltage	DC
● Rated value (DC)	24 V
● for signal "0"	-3 to +5V
● for signal "1"	+11 to +30V
Input current	
● for signal "1", typ.	2.5 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; none / 0.05 / 0.1 / 0.4 / 1.6 / 3.2 / 12.8 / 20 ms
— at "0" to "1", min.	4 µs; for parameterization "none"
— at "0" to "1", max.	20 ms
— at "1" to "0", min.	4 µs; for parameterization "none"
— at "1" to "0", max.	20 ms
for interrupt inputs	
— parameterizable	Yes; Same as for standard inputs

for technological functions	
— parameterizable	Yes; Same as for standard inputs
Cable length	
● shielded, max.	1 000 m; 600 m for technological functions; depending on input frequency, encoder and cable quality; max. 50 m at 100 kHz
● unshielded, max.	600 m; for technological functions: No
Digital outputs	
Type of digital output	Transistor
integrated channels (DO)	16
Current-sourcing	Yes; Push-pull output
Short-circuit protection	Yes; electronic/thermal
● Response threshold, typ.	1.6 A with standard output, 0.5 A with high-speed output; see manual for details
Limitation of inductive shutdown voltage to	-0.8 V
Controlling a digital input	Yes



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