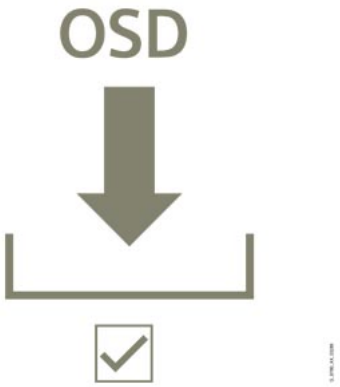
SIEMENS

Data sheet 6ES7672-8AC01-0YG0



SIMATIC S7-1500, Software Controller CPU 1508S, Single License for 1 installation, R-SW, software, documentation and license key download, R-SW Class A, 6 languages (de,en,it,fr,es,zh), executable in Windows 7/10, reference hardware: IPC4x7E, IPC6x7E, IPC8x7E, IPC6x7D, IPC8x7D
********** Email address required for delivery

General information	
Product type designation	CPU 1508S
Software version	V21.9
Product function	
● I&M data	Yes; I&M0 to I&M3
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	V17
Configuration control	
via dataset	Yes
Memory	
SIMATIC memory card required	No; Use of the PC mass storage
Work memory	
● integrated (for program)	10 Mbyte
● integrated (for data)	100 Mbyte
● integrated (for CPU function library of CPU Runtime)	50 Mbyte
Load memory	
● integrated (on PC mass storage)	1 024 Mbyte
Backup	
● with UPS	Yes; all memory areas declared retentive
● with non-volatile memory	Yes; Depending on PC hardware
CPU processing times	
for bit operations, typ.	1 ns; On IPC427E, Intel Xeon processor
for word operations, typ.	2 ns; On IPC427E, Intel Xeon processor
for fixed point arithmetic, typ.	2 ns; On IPC427E, Intel Xeon processor
for floating point arithmetic, typ.	2 ns; On IPC427E, Intel Xeon processor
CPU-blocks	
Number of elements (total)	6 000; In addition to blocks such as DBs, FBs and FCs, UDTs, global constants, etc. are also regarded as elements
DB	
● Number, max.	5 999; Number range: 1 to 65535
● Size, max.	16 Mbyte
FB	
● Number, max.	5 998; Number range: 1 to 65535
● Size, max.	1 024 kbyte
FC	
● Number, max.	5 999; Number range: 1 to 65535
● Size, max.	1 024 kbyte
OB	
● Size, max.	1 024 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
● 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.	135 kbyte; on SIMATIC IPC427D, IPC477D, IPC427E, IPC477E, IPC627E, IPC677E; 35 KB on SIMATIC IPC627D, IPC677D and IPC827D
Extended retentive data area (incl. timers, counters, flags), max.	100 Mbyte; When using PC mass storage for retentive data
Flag	
● Size, max.	16 kbyte
● Number of clock memories	8; in 1 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	8 192
I/O address area	
● Inputs	32 kbyte
● Outputs	32 kbyte
Subprocess images	
● Number of subprocess images, max.	32
Hardware configuration	
Number of distributed IO systems	20
Number of DP masters	
● via PC interfaces	1
Number of IO Controllers	
● via PC interfaces	2; any combination of RT or IRT interfaces
Time of day	
Clock	
● Type	Software clock, synchronizable, no battery backup
● Deviation per day, max.	Depending on PC hardware
Operating hours counter	
● Number	16

Clock synchronization	
● supported	Yes
● to DP, master	No
● on Ethernet via NTP	Yes
● on Windows clock, slave	Yes
Interfaces	
Number of interfaces	3
Number of PROFINET interfaces	2
Number of PROFIBUS interfaces	1
1. Interface	
Interface type	CP 1625
Number of connections	192
Interface types	
● RJ 45 (Ethernet)	Yes
— Transmission rate, max.	100 Mbit/s
— Industrial Ethernet status LED	Yes
● Number of ports	2
● integrated switch	Yes
Protocols	
● IP protocol	Yes; IPv4
● PROFINET IO Controller	Yes
● PROFINET IO Device	Yes
● SIMATIC communication	Yes
● Open IE communication	Yes
● Web server	Yes
PROFINET IO Controller	
Services	
— Isochronous mode	Yes
— Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)
— shortest clock pulse	500 µs
— IRT	Yes
— PROFIenergy	Yes
— Prioritized startup	Yes; max. 32 PROFINET devices; if you want to use the "Prioritized startup" functionality in STEP7 for the PROFINET interface of the CPU, the CPU and the device must be seperated by means of a switch (e.g SCALANCE X205) or CP1625
— Number of connectable IO Devices, max.	256; the maximal amount of supported devices on all interfaces (PN/PB) is 384 in total
— Of which IO devices with IRT, max.	64
— Number of connectable IO Devices for RT, max.	256
— of which in line, max.	256
— Number of IO Devices that can be simultaneously activated/deactivated, max.	8
— IO Devices changing during operation (partner ports), supported	Yes; the CPU and changing IO devices must be separated by a switch (e.g. SCALANCE X205)
— Number of IO Devices per tool, max.	8
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
Update time for IRT	
— for send cycle of 250 µs	250 µs to 4 ms
— for send cycle of 500 µs	500 µs to 8 ms
— for send cycle of 1 ms	1 ms to 16 ms
— for send cycle of 2 ms	2 ms to 32 ms
— for send cycle of 4 ms	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)
— With IRT and parameterization of "odd" send cycles	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)
Update time for RT	
— for send cycle of 250 µs	250 µs to 128 ms
— for send cycle of 500 µs	500 µs to 256 ms
— for send cycle of 1 ms	1 ms to 512 ms
— for send cycle of 2 ms	2 ms to 512 ms
— for send cycle of 4 ms	4 ms to 512 ms

Address area	
— Inputs, max.	16 kbyte
— Outputs, max.	16 kbyte
PROFINET IO Device	
Services	
— Isochronous mode	No
— IRT	Yes
— PROFIenergy	Yes
— Prioritized startup	Yes
— Shared device	Yes
— Number of IO Controllers with shared device, max.	4
— Asset management record	Yes
2. Interface	
Interface type	Onboard PROFINET / IE interface X2 of the SIMATIC IPC, Intel Springville i210T
Number of connections	192
Interface types	
● RJ 45 (Ethernet)	Yes
— Transmission rate, max.	100 Mbit/s
— Industrial Ethernet status LED	Yes
● Number of ports	1
● integrated switch	No
Protocols	
● IP protocol	Yes; IPv4
● PROFINET IO Controller	Yes
● PROFINET IO Device	Yes
● SIMATIC communication	Yes
● Open IE communication	Yes
● Web server	Yes
● Media redundancy	No
PROFINET IO Controller	
Services	
— Isochronous mode	No
— IRT	No
— PROFIenergy	Yes
— Prioritized startup	Yes; max. 32 PROFINET devices; if you want to use the "Prioritized startup" functionality in STEP 7 for the PROFINET interface of the CPU, the CPU and the device must be separated by means of a switch (e.g. SCALANCE X205)
— Number of connectable IO Devices for RT, max.	128; the maximal amount of supported devices on all interfaces (PN/PB) is 384 in total
— of which in line, max.	128
— Number of IO Devices that can be simultaneously activated/deactivated, max.	8
— Number of IO Devices per tool, max.	8
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
PROFINET IO Device	
Services	
— Isochronous mode	No
— IRT	No
— PROFIenergy	Yes
— Shared device	Yes
— Number of IO Controllers with shared device, max.	4
— Asset management record	Yes
3. Interface	
Interface type	PROFIBUS with CP 5622, CP 5622 onboard
Number of connections	44
Interface types	
● RS 485	Yes

Protocols	
● PROFIBUS DP master	Yes
● PROFIBUS DP slave	No
● SIMATIC communication	Yes; no PG/STEP 7 connection possible
PROFIBUS DP master	
● Number of DP slaves, max.	64
Services	
— Equidistance	No
— Isochronous mode	No
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
4. Interface	
Interface type	PROFIBUS with CP 5623
Number of connections	44
Interface types	
● RS 485	Yes
Protocols	
● PROFIBUS DP master	Yes
● PROFIBUS DP slave	No
● SIMATIC communication	Yes; no PG/STEP 7 connection possible
PROFIBUS DP master	
● Number of DP slaves, max.	125
Services	
— Equidistance	No
— Isochronous mode	No
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
Protocols	
PROFIsafe	No
Number of connections	
● Number of connections, max.	192
● Number of connections reserved for ES/HMI/web	10
● Number of S7 routing paths	16
Redundancy mode	
Media redundancy	
— MRP	Yes
— MRPD	Yes; Requirement: IRT
— Switchover time on line break, typ.	200 ms; For MRP, bumpless for MRPD
— Number of stations in the ring, max.	50
SIMATIC communication	
● PG/OP communication	Yes
● S7 routing	Yes
● S7 communication, as server	Yes
● S7 communication, as client	Yes
● User data per job, max.	64 kbyte; BSEND/BRCV: 64 KB; PUT/GET: 960 bytes
Open IE communication	
● TCP/IP	Yes
— Data length, max.	64 kbyte
● ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
● UDP	Yes
— Data length, max.	2 kbyte
— UDP multicast	Yes; 128 multicast circuits (of which max. 5 via CP 1625)
● DHCP	Yes
● DNS	Yes
● SNMP	Yes
● DCP	Yes
● LLDP	Yes
Web server	

● HTTP	Yes
● HTTPS	Yes
OPC UA	
● Runtime license required	Yes; "Large" license required
● OPC UA Client	Yes; Data access (read, write), method call
— Security policies	Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	Yes; "anonymous" or by user name & password
— Number of connections, max.	40
— Number of nodes of the client interfaces, recommended max.	5 000
— Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_U max.	300
— Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.	20
— Number of elements for one call of OPC_UA_MethodGetHandleList, max.	100
— Number of simultaneous calls of the client instructions for session management, per connection, max.	1
— Number of simultaneous calls of the client instructions for data access, per connection, max.	5
— Number of registerable nodes, max.	5 000
— Number of registerable method calls of OPC_UA_MethodCall, max.	100
— Number of inputs/outputs when calling OPC_UA_MethodCall, max.	20
● OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space
— Application authentication	Yes
— Security policies	Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	Yes; "anonymous" or by user name & password
— Number of sessions, max.	64
— Number of accessible variables, max.	200 000
— Number of registerable nodes, max.	50 000
— Number of subscriptions per session, max.	20
— Sampling interval, min.	10 ms
— Publishing interval, min.	10 ms
— Number of server methods, max.	100
— Number of inputs/outputs per server method, max.	20
— Number of monitored items, recommended max.	10 000; for 1 s sampling interval and 1 s send interval
— Number of server interfaces, max.	10
— Number of nodes for user-defined server interfaces, max.	30 000
Further protocols	
● MODBUS	Yes; MODBUS TCP
S7 message functions	
Number of login stations for message functions, max.	32
Program alarms	Yes
Number of configurable program messages, max.	10 000
Number of loadable program messages in RUN, max.	5 000
Number of simultaneously active program alarms	1 000
● Number of program alarms	1 000
● Number of alarms for system diagnostics	200
● Number of alarms for motion technology objects	160
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 10 engineering systems
Status block	Yes; up to 8 simultaneously
Single step	Yes
Number of breakpoints	8
Status/control	
● Status/control variable	Yes
● Variables	Inputs, outputs, memory bits, DB, times, counters

● Number of variables, max.	
— of which status variables, max.	200
— of which control variables, max.	200
Forcing	
● Forcing	Yes
● Forcing, variables	Inputs, outputs
● Number of variables, max.	200
Diagnostic buffer	
● present	Yes
● Number of entries, max.	1 000
— of which powerfail-proof	300
Traces	
● Number of configurable Traces	4
● Memory size per trace, max.	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
● RUN/STOP LED	Yes; HW LED of SIMATIC IPC227E, IPC427D/E, IPC627D/E, IPC827D, IPC677D/E
● ERROR LED	Yes; HW LED of SIMATIC IPC227E, IPC427D/E, IPC627D/E, IPC826D, IPC677D/E
● MAINT LED	Yes; HW LED of SIMATIC IPC227E, IPC427D/E, IPC627D/E, IPC827D, IPC677D/E
Supported technology objects	
Motion Control	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool or SIZER
● Number of available Motion Control resources for technology objects	4 800
● Required Motion Control resources	
— per speed-controlled axis	40
— per positioning axis	80
— per synchronous axis	160
— per external encoder	80
— per output cam	20
— per cam track	160
— per probe	40
● Positioning axis	
— Number of positioning axes at motion control cycle of 4 ms (typical value)	30; On IPC427E, Intel Xeon processor
— Number of positioning axes at motion control cycle of 8 ms (typical value)	60; On IPC427E, Intel Xeon processor
Controller	
● PID_Compact	Yes; Universal PID controller with integrated optimization
● PID_3Step	Yes; PID controller with integrated optimization for valves
● PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	
● High-speed counter	Yes
Hardware requirement	
Hardware required	SIMATIC IPC4x7E, IPC6x7D/E, IPC8x7D/E
Processor	
● Single-core processor	No
● Single-core processor with hyper-threading	No
● Multi-core processor	Yes
● Multi-core processor with hyper-threading	Yes
● occupied cores	1; For multicore processors with activated Hyper-Threading, one complete physical core is reserved for the CPU 1507S
Memory	
● Work memory, min.	8 Gbyte
● Hard disk memory required for installation	720 Mbyte
● Temporary hard disk memory for installation	230 Mbyte
● Hard disk memory required at runtime	1 000 Mbyte
Operating systems	
Runs under operating system	
● Windows 7	Yes; Professional, Enterprise, Ultimate (32 bit and 64 bit); Windows Embedded

	Standard 7 with delivery image of the SIMATIC IPC
● Windows 10	Yes; Windows 10 Enterprise 2016 LTSB, 64-bit, MUI on IPC2x7E, IPC4x7E, IPC6x7D, IPC8x7D; Windows 10 Enterprise 2019 LTSC 64-bit, MUI on IPC2x7E, IPC4x7E, IPC6x7E, IPC8x7E
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	No
— GRAPH	Yes
Know-how protection	
● User program protection/password protection	Yes
● Copy protection	Yes
● Block protection	Yes
Access protection	
● Protection level: Write protection	Yes
● Protection level: Read/write protection	Yes
● Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
● lower limit	adjustable minimum cycle time
● upper limit	adjustable maximum cycle time
Open Development interfaces	
● Size of ODK SO file, max.	9.8 Mbyte

last modified: 4/1/2022