

S7 1500 PLC CPU Comparison

SIMATIC S7-1500 CPUs

SIMATIC S7-1500 CPUs are scalable in terms of power, memory and quantity structure, they offer future-proof communication with OPC UA and PROFINET, and basic motion control functions.

In addition, the fail-safe versions have a larger memory for standard and fail-safe applications and fail-safe communication via PROFIsafe with PROFINET/PROFIBUS, and guarantee functional safety to SIL 3 in accordance with IEC 62061 and PL e in accordance with ISO 13849.



Comparison of standard CPUs

Standard CPUs	CPU 1511-1 PN	CPU 1513-1 PN	CPU 1515-2 PN	CPU 1516-3 PN/DP	CPU 1517-3 PN/DP	CPU 1518-4 PN/DP
Use Case	Small to medium applications	Medium size applications	Medium to high end applications	Advanced applications and additional communication tasks	Demanding applications and additional communication tasks	High-performance applications and shortest possible response times
PN IO IRT (2 Port)	2 Port	2 Port	2 Port	2 Port	2 Port	2 Port
PN IO RT	-	-	1 Port	1 Port	1 Port	1 Port
PN (Gbit)	-	-	-	-	-	1 Port
Profibus DP	-	-	-	1 Interface	1 Interface	1 Interface
Program/Data memory	150 KB / 1 MB	300 KB / 1,5 MB	500 KB / 3 MB	1 MB / 5 MB	2 MB / 8 MB	4 MB / 20 MB
Bit-Performance	60 ns	40 ns	30 ns	10 ns	2 ns	1 ns
Max. number of connections	96	128	192	256	320	384
Number of motion control resources		800	2400	2400	10240	10240
Width	35 mm	35 mm	70 mm	70 mm	175 mm	175 mm
	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool) 	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool) 	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool) 	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool) 	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool) 	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool)

The heart of the SIMATIC S7-1500 PLC

The central processing units (CPUs) are the heart of the SIMATIC S7-1500 controller. They execute the user program and network the controller with other automation components. Thanks to numerous innovations, the CPUs of the SIMATIC S7-1500 PLC deliver the ultimate plus in productivity and efficiency. The hardware is extremely compact and certified to IP20 or IP65/67 standard. These highly integrated, highly versatile modules save space in and around the cabinet and reduce the spare parts inventory costs.



Comparison of fail-safe CPUs

Fail-safe CPUs	CPU 1511F-1 PN	CPU 1513F-1 PN	CPU 1515F-2 PN	CPU 1516F-3 PN/DP	CPU 1517F-3 PN/DP	CPU 1518F-4 PN/DP
Use Case	Small to medium applications	Medium size applications	Medium to high end applications	Advanced applications and additional communication tasks	Demanding applications and additional communication tasks	High-performance applications and shortest possible response times
PN IO IRT (2 Port)	2 Port	2 Port	2 Port	2 Port	2 Port	2 Port
PN IO RT	-	-	1 Port	1 Port	1 Port	1 Port
PN (Gbit)	-	-	-	-	-	1 Port
Profibus DP	-	-	-	1 Interface	1 Interface	1 Interface
Program/Data memory	225 KB / 1 MB	450 KB / 1,5 MB	750 KB / 3 MB	1,5 MB / 5 MB	3 MB / 8 MB	6 MB / 20 MB
Bit-Performance	60 ns	40 ns	30 ns	10 ns	2 ns	1 ns
Max. number of connections	96	128	192	256	320	384
Number of motion control resources	800	800	2400	2400	10240	10240
Width	35 mm	35 mm	70 mm	70 mm	175 mm	175 mm
	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool) 	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool) 	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool) 	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool) 	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool) 	<ul style="list-style-type: none"> › Further information (Industry Mall) › Configure (TIA Selection Tool)

One of the following memory cards is always required to operate the SIMATIC S7-1500:

SIMATIC S7 Memory Card, 3,3 V Flash	
4 MB	256 MB
12 MB	2 GB
24 MB	32 GB

SIEMENS

S7 1500 PLC



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