

Technical data: S7-400 CPUs

CPU	CPU 412-1	CPU 412-2	CPU 412-2 PN	CPU 414-2	CPU 414-3	CPU 414-3 PN/DP	CPU 414F- 3 PN/DP
Dimensions (mm)	25 x 290 x 219				50 x 290 x 219		
Slots	1				2		
Order No. group: 6ES7	412-1XJ.	412-2XJ.	412-2EK.	414-2XK.	414-3XM.	414-3EM.	414-3FM.
Firmware	V5	V5	V6	V5	V5	V6	V6
Work memory							
Integrated	288 KB	512 KB	1 MB	1 MB	2.8 MB	4 MB	
Instructions	48 K	84 K	170 K	170 K	460 K	680 K	
For program	144 KB	256 KB	512 KB	512 KB	1.4 MB	2 MB	
For data	144 KB	256 KB	512 KB	512 KB	1.4 MB	2 MB	
Processing times							
Bit operation	0.075 µs			0.045 µs			
Word operation	0.075 µs			0.045 µs			
Fixed-point operation	0.075 µs			0.045 µs			
Floating-point operation	0.225 µs			0.135 µs			
Bit memories, timers, counters							
Bit memory	4 KB			8 KB			
S7 timers/counters	2 048 / 2 048			2 048 / 2 048			
IEC timers/counters	● *)			● *)			
Address ranges							
I/O	4 KB / 4 KB			8 KB / 8 KB			
I/O process image	4 KB / 4 KB			8 KB / 8 KB			
Digital channels	32 768 / 32 768			65 536 / 65 536			
Analog channels	2 048 / 2 048			4 096 / 4 096			
DP interfaces							
Number of DP interfaces	1 (MPI/DP)	1	1 (MPI/DP)	1	2	1	
Number of DP slaves	32	64	32	96	96 each		125 each
Plug-in interface modules					1 x DP		1 x DP
PN interfaces							
Number of PN interfaces			1 (2 ports)			1 (2 ports)	
PROFINET IO			●			●	
PROFINET with IRT			●			●	
PROFINET CBA			●			●	
TCP/IP			●			●	
UDP			●			●	
ISO-on-TCP (RFC 1006)			●			●	
Web server			●			●	
Data set gateway	●			●			

*) Via SFB, number unlimited or limited only by main memory

CPU	CPU 416-2	CPU 416F-2	CPU 416-3 ¹⁾	CPU 416-3 PN/DP ¹⁾	CPU 416F-3 PN/DP	CPU 417-4 ¹⁾
Dimensions (mm)	25 x 290 x 219		50 x 290 x 219			50 x 290 x 219
Slots	1		2			2
Order No. group: 6ES7	416-2XN.	416-2FN.	416-3XR.	416-3ES.	416-3FS.	417-4XT.
Firmware	V5	V5	V5	V6	V6	V5
Work memory						
Integrated	5.6 MB		11.2 MB	16 MB		30 MB
Instructions	920 K		1840 K	2 680 K		5 M
For program	2.8 MB		5.6 MB	8 MB		15 MB
For data	2.8 MB		5.6 MB	8 MB		15 MB
Processing times						
Bit operation	0.03 µs					0.018 µs
Word operation	0.03 µs					0.018 µs
Fixed-point operation	0.03 µs					0.018 µs
Floating-point operation	0.09 µs					0.054 µs
Bit memories, timers, counters						
Bit memory	16 KB					16 KB
S7 timers/counters	2 048 / 2 048					2 048 / 2 048
IEC timers/counters	● *)					● *)
Address ranges						
I/O	16 KB / 16 KB					16 KB / 16 KB
I/O process image	16 KB / 16 KB					16 KB / 16 KB
Digital channels	131 072 / 131 072					131 072 / 131 072
Analog channels	8 192 / 8 192					8 192 / 8 192
DP interfaces						
Number of DP interfaces	1		2	1		3
Number of DP slaves	125		125 each			125 each
plug-in interfaces			1 x DP			2 x DP
PN interfaces						
Number of PN interfaces				1 (2 ports)		
PROFINET IO				●		
PROFINET with IRT				●		
PROFINET CBA				●		
TCP/IP				●		
UDP				●		
ISO-on-TCP (RFC 1006)				●		
Web server				●		
Data set gateway	●					●

¹⁾ As SIPLUS extreme component also for corrosive atmosphere/condensation (for further details, see page 98 or www.siemens.com/siplus-extreme)

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