

Technology CPUs for Motion Control

Product information for five current Siemens technology CPUs

The technology CPUs of the SIMATIC S7-1500 extend the Motion Control functions available in every S7-1500 controller. They add extended technology objects such as cams, leading axis proxy and kinematics, and are configured in the TIA Portal (STEP 7 Professional). Every CPU in this range requires a SIMATIC Memory Card to operate.

At a glance

CPU	Siemens part number	Work memory (program / data)	Bit speed	Interfaces
CPU 1511T-1 PN	6ES7511-1TL03-0AB0	450 KB / 1.5 MB	6 ns	1 x PROFINET IRT (2-port switch)
CPU 1515T-2 PN	6ES7515-2TN03-0AB0	1.5 MB / 4.5 MB	6 ns	PROFINET IRT (2-port switch) + PROFINET RT
CPU 1516T-3 PN	6ES7516-3TP10-0AB0	3 MB / 25 MB	1.2 ns	2 x PROFINET IRT (2-port switch) + PROFINET basic services
CPU 1517T-3 PN	6ES7517-3TQ10-0AB0	6 MB / 50 MB	0.6 ns	2 x PROFINET IRT (2-port switch) + PROFINET basic services*
CPU 1518T-3 PN	6ES7518-3TT10-0AB0	18 MB / 150 MB	0.3 ns	2 x PROFINET IRT (2-port switch) + PROFINET basic services

* The 1517T-3 PN interface layout was confirmed from the sibling 1517TF-3 PN data sheet; check the data sheet for the exact article before ordering.

Common features

- Motion Control technology objects: speed axes, positioning axes, synchronous axes, external encoders, cams, cam tracks and measuring inputs
- Extended Motion Control (T-CPU only): gearing and camming, leading axis proxy, kinematics with up to 4 interpolating axes (up to 6 with the S7-1500T Motion Control KinPlus package)
- Supply: 24 V DC (19.2 to 28.8 V), reverse-polarity protected
- Load memory on SIMATIC Memory Card (required)
- Isochronous mode and PROFINET IRT for synchronised drive communication

CPU profiles

CPU 1511T-1 PN

6ES7511-1TL03-0AB0

Entry point of the technology range. Compact 35 mm module for smaller motion-control applications, with PROFINET IRT for isochronous, distributed drive control.

- Work memory: 450 KB program, 1.5 MB data
- 1 PROFINET interface, IRT with 2-port switch
- Display diagonal 3.45 cm
- Dimensions 35 x 147 x 129 mm (W x H x D); weight approx. 0.45 kg
- Typical power loss 3.4 W; supply 24 V DC (19.2 to 28.8 V)

CPU 1515T-2 PN

6ES7515-2TN03-0AB0

Mid-range technology CPU with a second PROFINET interface for network separation or connecting further RT devices.

- Work memory: 1.5 MB program, 4.5 MB data
- 1st interface PROFINET IRT with 2-port switch; 2nd interface PROFINET RT
- Retentive memory for bit memories, timers, counters, DBs and technology data: 472 KB
- Dimensions 70 x 147 x 129 mm (W x H x D); weight approx. 540 g
- Supply 24 V DC; one SIMATIC Memory Card slot

CPU 1516T-3 PN

6ES7516-3TP10-0AB0

High-performance technology CPU with two IRT-capable PROFINET interfaces, suited to demanding motion applications and communication tasks.

- Work memory: 3 MB program, 25 MB data
- 1st and 2nd interfaces: PROFINET IRT, each with 2-port switch; 3rd interface: PROFINET basic services
- Current-generation hardware: not compatible with predecessor CPUs as a spare part, and predecessor SIMATIC Memory Cards cannot be used directly
- Equipment manual edition 11/2024

CPU 1517T-3 PN

6ES7517-3TQ10-0AB0

Technology CPU for high-end applications and communication tasks, with large memory and very short instruction times.

- Work memory: 6 MB program, 50 MB data
- Three PROFINET interfaces: two IRT with 2-port switch plus basic services*
- Not compatible with predecessor CPUs (e.g. 1517T-3 PN/DP) as a spare part
- Earlier variant: CPU 1517T-3 PN/DP (3 MB / 8 MB, with PROFIBUS DP), a different article

CPU 1518T-3 PN

6ES7518-3TT10-0AB0

Top of the technology range: for high-performance motion control with large quantities of axes, demanding communication and very short reaction times.

- Work memory: 18 MB program, 150 MB data
- 1st and 2nd interfaces: PROFINET IRT with 2-port switch; 3rd interface: PROFINET basic services
- Equipment manual edition 11/2024

Sources and notes

Specifications compiled from Siemens data sheets and equipment manuals (support.industry.siemens.com) for the 1511T-1 PN, 1515T-2 PN, 1516T-3 PN, 1517T-3 PN and 1518T-3 PN, the S7-1500/S7-1500T Motion Control Overview function manual, and distributor listings. Bit performance for the 1511T-1 PN is the figure on the current (V4.x) data sheet; earlier firmware versions list 25 ns. Specifications can change with firmware and hardware revisions, so confirm against the current Siemens data sheet before quoting or ordering.