

Pos	Item-ID	Item description	Qty
		----- IO RTTM FCS 4 (Inceptors, WoW, SFD, FTI) -----	
1	109301	Performance real-time target machine (P3) Complete, fully assembled, and tested Performance real-time target machine with access to I/O modules at the front side. Including 19" 4U aluminum chassis, integrated AC/DC power supply, low-noise fans, 8 GB Memory, 128 GB SSD, industrial-grade mainboard with 4-core 3.1 GHz Intel Core processor and onboard expansion slots to accommodate up to 7 I/O modules. Onboard communication: 1x Gigabit Ethernet interface for host-target communication, 1x Gigabit Ethernet interface supporting network protocols such as EtherCAT Master, UDP, TCP/IP, XCP Master, Modbus TCP and many more (the supported protocols might depend on the MATLAB release and separately purchased run-time licenses), 2x RS232 serial ports supporting baud rates up to 115.2 kbps, 4x Type-A and 1x Type-C USB ports supporting USB 3.1 Gen 2 (10 Gbps). Operating temperature range: 0 to 60 °C.	1
2	109311	Performance-P3-CPU-4.0GHz-6Core Replaces the 4-core 3.1 GHz Intel Core with a 6-core 4 GHz Intel Xeon processor, providing maximum performance and scalability to support your real-time application.	1

Pos	Item-ID	Item description	Qty
3	109351	Performance-P3-RearIO This option replaces the default enclosure with a version providing access to I/O module connectors at the rear side instead of at the front.	1
4	109352	Performance-P3-Rack This option replaces the default handles with rack-mountable brackets. Factory assembled. Delivery includes default desktop handles and bumpers for desktop use (not mounted).	1
5	2A1336	IO133-Performance Low latency analog and digital I/O module with 16 x high resolution 16-bit differential simultaneous sampling analog inputs software configurable as $\pm 5V$ or $\pm 10V$ in groups of eight 8 x 16-bit single-ended simultaneous analog outputs individually software configurable as 5V, 10V, 10.8V, $\pm 5V$, $\pm 10V$, or $\pm 10.8V$, and 14 x 3.3/5V ESD protected digital TTL I/O lines individually configurable as input or output. Analog input frequencies up to 200ksps with DMA, and DA settling time of 10us. Factory calibrated, with correction values stored on EEPROM, and additional temperature sensor. Front and rear trigger and synchronization support. Operating temperature range: -40 to +85 °C. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested. Rev.A1	1
6	202036	IO203-Performance Flexible digital I/O module with 64 TTL channels, individually programmable as inputs or outputs. Default pull on voltage is 3.3V (standard TTL), but can be set to standard 5V CMOS level via Jumper. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested. Rev.A1	1
7	204216	IO421-Performance Multifunction PCI I/O base module for LVDT/RVDT and Synchro/Resolver measurement and simulation allowing to integrate up to three plug-in modules. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested.	2
8	2L421C6	IO421-1-LC-Performance 16-bit plug-in module for IO421 I/O base module with 4 LVDT/RVDT measurement channels programmable with 2 or 3/4 wire capability. LC plug-in. Input voltage: 2-28 VL-L, Frequency Band: 1kHz - 3kHz. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested. LC (2-28 VL-L, 1kHz - 3kHz)	4
9	2B9076	IO907-Performance Shared memory PMC-5565-PIORC-210000, 2 GIGA baud RM w/FO options, 256MB of memory, 4K FIFOs, multimode transmission. Including fiber optic cable. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested.	1

IO RTTM FCC 1-3 (FCC 1 - IO133, FCC 3 - IO135)

Pos	Item-ID	Item description	Qty
10	109301	Performance real-time target machine (P3) Complete, fully assembled, and tested Performance real-time target machine with access to I/O modules at the front side. Including 19" 4U aluminum chassis, integrated AC/DC power supply, low-noise fans, 8 GB Memory, 128 GB SSD, industrial-grade mainboard with 4-core 3.1 GHz Intel Core processor and onboard expansion slots to accommodate up to 7 I/O modules. Onboard communication: 1x Gigabit Ethernet interface for host-target communication, 1x Gigabit Ethernet interface supporting network protocols such as EtherCAT Master, UDP, TCP/IP, XCP Master, Modbus TCP and many more (the supported protocols might depend on the MATLAB release and separately purchased run-time licenses), 2x RS232 serial ports supporting baud rates up to 115.2 kbps, 4x Type-A and 1x Type-C USB ports supporting USB 3.1 Gen 2 (10 Gbps). Operating temperature range: 0 to 60 °C.	1
11	109311	Performance-P3-CPU-4.0GHz-6Core Replaces the 4-core 3.1 GHz Intel Core with a 6-core 4 GHz Intel Xeon processor, providing maximum performance and scalability to support your real-time application.	1
12	109351	Performance-P3-RearIO This option replaces the default enclosure with a version providing access to I/O module connectors at the rear side instead of at the front.	1
13	109352	Performance-P3-Rack This option replaces the default handles with rack-mountable brackets. Factory assembled. Delivery includes default desktop handles and bumpers for desktop use (not mounted).	1
14	109341	Performance-P3-IOExpansion-4PCI Expands the Performance real-time target machine with 4 additional I/O slots to accommodate up to 11 I/O modules in the main chassis.	1
15	202036	IO203-Performance Flexible digital I/O module with 64 TTL channels, individually programmable as inputs or outputs. Default pull on voltage is 3.3V (standard TTL), but can be set to standard 5V CMOS level via Jumper. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested. Rev.A1	1
16	204216	IO421-Performance Multifunction PCI I/O base module for LVDT/RVDT and Synchro/Resolver measurement and simulation allowing to integrate up to three plug-in modules. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested.	1

Pos	Item-ID	Item description	Qty
17	25421J6	IO421-3-5J-Performance Digital-to-LVDT/RVDT (DLV) simulation module with 3 two-wire or 3 three/four wire LVDT/RVDT outputs. Type 5J plug-in. Input voltage: 2-11.8 VL-L, Reference voltage: 2-28 Vrms, Frequency Band: 1kHz - 3kHz. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested. 5J (2-11.8 VL-L, ref: 2-28 Vrms, 1kHz-3kHz)	2
18	205036	IO503-Performance 4-port RS232/RS422/RS485 I/O module for baud rates up to 920 kb/s (RS232) and 5.5296 Mb/s (RS422/485). Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested.	1
19	2A6026	IO602-Performance Intelligent CAN I/O module with four independent High-Speed CAN FD interfaces and selectable on board CAN termination. Access to all I/O is via 25-pin DSUB connector or via 4x 9-pin DSUB (male) connectors also included in the delivery, as well as CAN loopback test cables. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested.	2
20	2X602	ARINC825 Run-Time License Run-time license allowing ARINC825-3 standard CAN bus protocol for airborne applications to run on the IO602 or IO691 I/O module. License is included in the target license file and is bound to the system. It is not interchangeable with other systems.	1
21	2C6826	IO682-8-8-Performance Intelligent ARINC 429 I/O module with 8 RX and 8 TX channels. Includes driver Blockset for Simulink Real-Time, I/O cable, and terminal board. Installed in selected Real-time target machine and fully tested. Operating temperature range: 0 to + 70 °C. Simultaneous scheduled and burst Mode (FIFO) messaging is supported. Data rates are programmable between 5 kHz and 150 kHz. Complete independent channel configuration and operation. Parity error and short word error detection. 2048 message transmit and receive buffer for each channel. 64-bit. 1 µsec time-tag tored with each data element in the FIFO. Short circuit protection. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested. Rev.A1	1
22	2B715	IO715 Four channel Gigabit Ethernet I/O module supporting EtherCAT Master (R2018a+), real-time UDP (R2018a+), PTP IEEE-1588 (R2018b+), XCP Master for bypassing (R2018a+) and TCP/IP (R2018a+). PCI Express x4 Interface. Supported operating temperature range: -40 to + 85°C. Rev.A0	1
23	2B9076	IO907-Performance Shared memory PMC-5565-PIORC-210000, 2 GIGA baud RM w/FO options, 256MB of memory, 4K FIFOs, multimode transmission. Including fiber optic cable. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested.	1

Pos	Item-ID	Item description	Qty
		----- Real-Time Server RTTM 1 -----	
24	109301	Performance real-time target machine (P3) Complete, fully assembled, and tested Performance real-time target machine with access to I/O modules at the front side. Including 19" 4U aluminum chassis, integrated AC/DC power supply, low-noise fans, 8 GB Memory, 128 GB SSD, industrial-grade mainboard with 4-core 3.1 GHz Intel Core processor and onboard expansion slots to accommodate up to 7 I/O modules. Onboard communication: 1x Gigabit Ethernet interface for host-target communication, 1x Gigabit Ethernet interface supporting network protocols such as EtherCAT Master, UDP, TCP/IP, XCP Master, Modbus TCP and many more (the supported protocols might depend on the MATLAB release and separately purchased run-time licenses), 2x RS232 serial ports supporting baud rates up to 115.2 kbps, 4x Type-A and 1x Type-C USB ports supporting USB 3.1 Gen 2 (10 Gbps). Operating temperature range: 0 to 60 °C.	1
25	109311	Performance-P3-CPU-4.0GHz-6Core Replaces the 4-core 3.1 GHz Intel Core with a 6-core 4 GHz Intel Xeon processor, providing maximum performance and scalability to support your real-time application.	1
26	109331	Performance-P3-SSD1TB Replaces the 128 GB SSD with a 1 TB SSD for additional data logging storage.	1
27	109351	Performance-P3-RearIO This option replaces the default enclosure with a version providing access to I/O module connectors at the rear side instead of at the front.	1
28	109352	Performance-P3-Rack This option replaces the default handles with rack-mountable brackets. Factory assembled. Delivery includes default desktop handles and bumpers for desktop use (not mounted).	1
29	2B9076	IO907-Performance Shared memory PMC-5565-PIORC-210000, 2 GIGA baud RM w/FO options, 256MB of memory, 4K FIFOs, multimode transmission. Including fiber optic cable. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested. ----- FDM RTTM 1 -----	1

Pos	Item-ID	Item description	Qty
30	109301	Performance real-time target machine (P3) Complete, fully assembled, and tested Performance real-time target machine with access to I/O modules at the front side. Including 19" 4U aluminum chassis, integrated AC/DC power supply, low-noise fans, 8 GB Memory, 128 GB SSD, industrial-grade mainboard with 4-core 3.1 GHz Intel Core processor and onboard expansion slots to accommodate up to 7 I/O modules. Onboard communication: 1x Gigabit Ethernet interface for host-target communication, 1x Gigabit Ethernet interface supporting network protocols such as EtherCAT Master, UDP, TCP/IP, XCP Master, Modbus TCP and many more (the supported protocols might depend on the MATLAB release and separately purchased run-time licenses), 2x RS232 serial ports supporting baud rates up to 115.2 kbps, 4x Type-A and 1x Type-C USB ports supporting USB 3.1 Gen 2 (10 Gbps). Operating temperature range: 0 to 60 °C.	1
31	109311	Performance-P3-CPU-4.0GHz-6Core Replaces the 4-core 3.1 GHz Intel Core with a 6-core 4 GHz Intel Xeon processor, providing maximum performance and scalability to support your real-time application.	1
32	109331	Performance-P3-SSD1TB Replaces the 128 GB SSD with a 1 TB SSD for additional data logging storage.	1
33	109351	Performance-P3-RearIO This option replaces the default enclosure with a version providing access to I/O module connectors at the rear side instead of at the front.	1
34	109352	Performance-P3-Rack This option replaces the default handles with rack-mountable brackets. Factory assembled. Delivery includes default desktop handles and bumpers for desktop use (not mounted).	1
35	2B9076	IO907-Performance Shared memory PMC-5565-PIORC-210000, 2 GIGA baud RM w/FO options, 256MB of memory, 4K FIFOs, multimode transmission. Including fiber optic cable. Includes Speedgoat driver blockset for R2021b, I/O cable, and terminal board. Installed in Performance real-time target machine and fully tested. ----- Rack/Mechanical/System/ Services -----	1

Pos	Item-ID	Item description	Qty
36	350101	HIL Cabinet Configuration 2x separate 42U cabinets: Cabinet material: - Base cabinet: 800x800x2000 mm, 42U, with wheels - Cooling: Active airflow cooling with fans at ceiling - Power distribution unit with: - Power inlet: 16A 230V, 1P+N+PE - Residual current device - Main switch and emergency button - Inrush current limiter - Component mounting and wiring material - Break-out panels - Debug panels - Connector panels with the SuT connectors - External connectors - Safety mechanism and failure detection - Design verification according to IEC 61439 - Declaration of conformity Full System Test: - Functional test of all IO signals and communication interfaces Cabinet Production: - Assembly of cabinet and component mountings - Wiring of all signal connections and power supplies	1
37	310140	Power Supplies and Signal-Conditioning Components Powersupplies - 6x PFR -100L - Analog remote control - Auxiliary supplies Components and material for the custom signal conditioning: - 7x Subrack for FIU, BoB and signalconditioning - Signalconditioning PCBs and components - BoB material - FIU material Miscellaneous: - Small material - Programmable network switch - Spare SigCo Plugins Acceptance/Comissioning/Training	1