Sr. No.	Description	Qty. (No.)
1	Real Time Digital Simulator (for Power Systems and Power Electronics), OP5707- based HYPERSIM/eMEGAsim simulator with 16 cores comprising of following items.	1
1	SOFTWARE	1
2	HYPERSIM® - Simulation - Real-time target core HX license - Includes one RT-LAB real-time target FX license on the same target	4
3	HYPERSIM® - Users - Node-locked host advanced license - Includes the schematic editor, 1 core, MINGW compiler for Windows, ScopeView and TestView	1
4	Intel C++ compiler for Linux	1
5	Software Academic Annual Maintenance and Extended Support Contract (5 Years) - Unlimited phone calls and emails to technical support - All software upgrades	1
6	eFPGASIM for Real-Time Simulation of Power Electronics on FPGA (example: for simulation of HVDC-MMC, solar inverters, etc), (Basic Dev) Flexible eHS1 28 Real Time Power Electronics Simulation Toolbox for OP5x07 Simulators	1
7	RT-LAB XSG FPGA Development System Based on XILINX SG (System Generator and ISE not included)	1
8	DNP3 Driver used between components in process automation systems, especially in SCADA systems Driver - DNP3 Master communication protocol for exchange of data between master stations and RTU and IED - 50 data points included	1
9	Driver - DNP3 Outstation Slave communication protocol for exchange of data between master stations and RTU and IED - 50 data points included	1
10	C37.1 1 8 Driver IEEE standard for transmitting synchrophasors within power systems. Driver - C37.1 1 8 Master communication protocol for PMU interface and synchrophasor communication - 50 data points included	1
11	Driver - C37.1 1 8 Slave communication protocol for PMU interface and synchrophasor communication - 50 data points included	1
12	IEC61 850 Driver used for the design of electrical substation automation, such as ethernet-based MMS, GOOSE and SV ethernet-based mappings Driver - IEC 61 850-8-1 GOOSE communication protocols (Publisher and Subscriber) for protection relay interface - 50 data points included	1
13	Driver - IEC 61 850-9-2 Sampled Value communication protocols (Publisher and Subscriber) for protection relay interface - 50 data points included	1
14	Modbus Driver Driver - Modbus Slave communication protocol using TCP-IP, RTU or ASCII interfaces - 50 data points included	1
15	Grant: Three Additional Hypersim User Licenses HYPERSIM® - Users - Node-locked host basic license Includes the schematic editor, 1 core, MINGW compiler for Windows and ScopeView	3

16	HARDWARE	1
17	OP5700 RCP/HIL Virtex7 FPGA-based Real-Time Simulator - 1 6 cores (5U, Xeon E5, 2x8 Cores, 3.2 GHz, 2x20M, 2x1 6GB, 51 2GB SSD)	1
18	Analog Input Card (1 6 Channels, 1 6 bits, 2.5 us, ±1 6V) Total = 1 6 Ch.	1
19	Analog Output Card (1 6 Channels, 1 6 bits, 1 us, ±1 6V) Total = 32 Ch.	2
20	Digital input card (32 channels, optocouplers, 4.5 V to 30 V) - 1 6 PWM frequency or time-stamped digital inputs - 1 6 static digital inputs	2
21	Digital Output card (32 channels, push-pull, FET, 5 V to 30 V, 200 ns to 65 ns) - 1 6 PWM frequency or time-stamped digital outputs - 1 6 static digital outputs	1
22	Engineering services - specific I/O bitstream generation	1
23	Time synchronization kit - Oregano Syn1 588 PCIe NIC, clock precise, RJ45, software license for OP451 0v2, OP5600, OP5700 Supports IRIG-B, 1 PPS, IEEE1 588	1
24	Intel EXPI9404PTL PT Quad Port Ethernet Server Adapter 1 0/1 00/1 000 Mbps PCI-Express 4 x RJ45 (for IEC 61 850 and other Ethernet-based protocols)	1
25	Cabinet 40U Black, (WxDxH) 1 9"x31 .5"x78", 1 9" Rack Mount (Includes Ethernet switch and power bar 240 V)	1
26	APC Smart-UPS 1 500VA USB & Serial RM 2U, 230V	1
27	Triple-monitor stand kit Includes one monitor stand, three LED LCD 24" monitors and a graphic card	1
28	Windows 7 64-bit desktop (Quad-core latest generation Intel processor, SSD 256 GB, RAM 1 6 GB), Includes Windows 1 0 Pro license	1
29	NI Grid Automation System with PMU Application	1
30	Rapid Control Prototyping Imperix Boom Box (RCP)	1
31	BoomBox - DSP Rapid Control Prototyping platform (RCP)	1
32	BoomBox - Simulink Blockset Licence	1
33	BoomBox - Standard OS + PC Software Licence	1
34	Boombox-OPAL-RT Simulator Interface board	1
35	Fiberoptic link (POF) for BoomBox	8
36	Analog input cable (RJ45) for BoomBox	6