

SRN Specs

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SRN Hardware

Standard Radio Node (SRN) provides a platform for software defined radio and machine learning applications

The SRN has 3 key hardware components:

- Dell R730 Server
- **Ettus X310** (<https://www.ettus.com/product/details/X310-KIT>) USRP Software Defined Radio
- **NVIDIA K40** (<http://www.dell.com/en-us/shop/dell-nvidia-tesla-k40m-gpu-computing-processor/apd/490-bbsr/parts-upgrades>) GP-GPU

Dell R730 Server Specifications

Hardware	Dell PowerEdge R730 Server (210-ACXU) PE R730/xd Motherboard MLK (329-BCZK)
Processors	Intel Xeon E5-2650 v4 2.2GHz,30M Cache,9.60GT/s QPI,Turbo,HT,12C/24T (105W) Max Mem 2400MHz (338-BJDV) Intel Xeon E5-2650 v4 2.2GHz,30M Cache,9.60GT/s QPI,Turbo,HT,12C/24T (105W) Max Mem 2400MHz (338-BJDW)
Graphics Processing Unit	NVIDIA Tesla K40M GPU (490-BBSQ) R730 GPU Installation Kit (490-BCDP)
Memory	128GB [16GB RDIMM, 2400MT/s, Dual Rank, x8 Data Width (370-ACNX) x8 2400MT/s RDIMMs (370-ACPH)] Performance Optimized (370-AAIP)
Hard Drives	Chassis with up to 8, 3.5" Hard Drives, Software RAID (350-BBEM) Bezel (350-BBEJ) 1TB 7.2K RPM SATA 6Gbps 3.5in Hot-plug Hard Drive,13G (400-AEEZ) 2x
Networking Adapters	R730/xd PCIe Riser 2, Center (330-BBCO) R730 PCIe Riser 3, Left (330-BBCQ) R730 PCIe Rise 1 Filler Blank, Right (374-BBHS) Qlogic 57810 Dual Port 10Gb Base-T Network Adapter (540-BBBD) Qlogic 57800 2x10Gb BT + 2x1Gb BT Network Daughterboard (540-BBBZ) iDRAC8 Enterprise, integrated Dell Remote Access Controller, Enterprise (385-BBHO)

For purchasing details see the [Other Resources](https://sc2colosseum.freshdesk.com/solution/articles/22000220368-other-resources) (<https://sc2colosseum.freshdesk.com/solution/articles/22000220368-other-resources>) page.

Ettus X310 Network Card

10GbE SFP+ Network Interface Card	https://www.ettus.com/product/details/10GIGE-KIT (https://www.ettus.com/product/details/10GIGE-KIT)
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Ettus X310

Base Unit	Ettus X310 https://www.ettus.com/product/details/X310-KIT (https://www.ettus.com/product/details/X310-KIT)
Bandwidth	100Mhz Total / 80Mhz usable
FPGA Resources	XILINX Kintex 7 – 410T Logic Cells: 406K Memory: 28,620 Kb Multipliers: 1540 Clock Rate: 200Mhz Streaming Bandwidth per Channel (16-bit): 200MS/s
Daughterboard	UBX 160LP: Modified Ettus UBX 160 for reduced power output and increased RX/TX isolation

Networking	10G ethernet
Reference Clock	Internal 10 MHz https://www.ettus.com/content/files/X300_X310_Spec_Sheet.pdf (https://www.ettus.com/content/files/X300_X310_Spec_Sheet.pdf)

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Software Versions

Software	Version	Notes
Ubuntu	Ubuntu 16.04.3 LTS (Xenial)	
Linux Kernel	4.4.0-109-generic	
Nvidia Driver	387.26	
CUDA	9.1.85-1_amd64	https://developer.nvidia.com/compute/cuda/9.1/Prod/local_installers/cuda-repo-ubuntu1604-9-1-local_9.1.85-1_amd64 (https://developer.nvidia.com/compute/cuda/9.1/Prod/local_installers/cuda-repo-ubuntu1604-9-1-local_9.1.85-1_amd64) https://developer.nvidia.com/compute/cuda/9.1/Prod/patches/1/cuda-repo-ubuntu1604-9-1-local-cublas-performance-update-1_1.0-1_amd64 (https://developer.nvidia.com/compute/cuda/9.1/Prod/patches/1/cuda-repo-ubuntu1604-9-1-local-cublas-performance-update-1_1.0-1_amd64)
GNURadio	3.7.10	git clone --recursive --branch v3.7.10 https://github.com/gnuradio/gnuradio.git (https://github.com/gnuradio/gnuradio.git)
UHD	3.9.5	git clone --branch release_003_009_005 https://github.com/EttusResearch/uhd.git (https://github.com/EttusResearch/uhd.git)
ColosseumCLI	2.2.3	
gpsd	3.17	git clone --branch release-3.17 https://git.savannah.gnu.org/git/gpsd.git (https://git.savannah.gnu.org/git/gpsd.git)