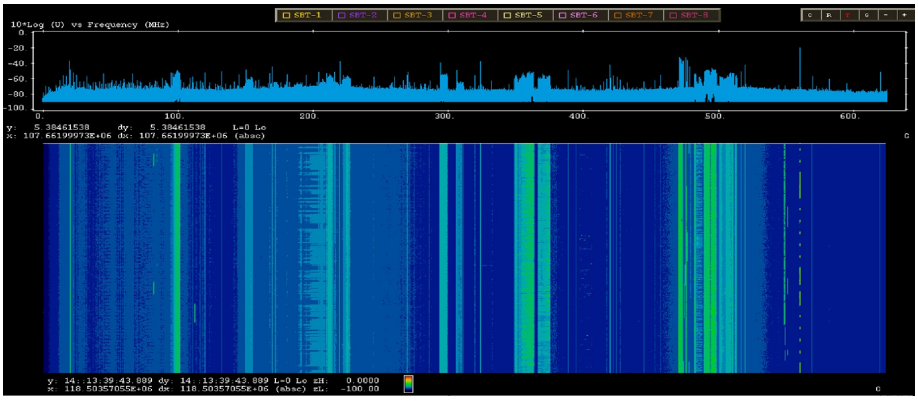
Velociraptor3
A/D Acquisition System

Features

- Continuous collection of up to 1GHz bandwidth
- 1.5 hours record at 1GHz in 3U 32TB DAQ System
- Optional external storage for extended recordings
- Optional integrated receivers with five selectable bandwidths: 50|100|200|500|1000MHz
- Open architecture that produces Midas blue files (Linux OS)

The Velociraptor3 (VR3) is the latest generation high-speed A/D acquisition system capable of digitizing an analog signal at rates from 300-2500 MSPS in 12-bit samples. The acquisition system is Linux based and a full X-Midas based software suite is provided. The latest in NVMe storage technology enables continuous collection at one of five selectable bandwidths 50|100|200|500|1000 MHz from an analog prefiltered frontend. Record offload capabilities allow for post-collection archiving to 80/160TB RAID-50 external array subsystems.

The VR3 system is highly customizable for each individual's needs. Packaging options range from fixed rack mount or eATX portable lunchbox. Optional data transfer options include tape drive(s) and recovery system(s).



Signal Conditioning Options:

Option #1:

- Receiver with 50-8000MHz tuning capabilities
- Bandwidths: 50|100|200|500|1000MHz
- Gain: 35 dB min, 40 dB typical
- Gain Adjustment:
  - ♦ 30 dB min, in 1 dB steps (IF Input)
  - ♦ 20 dB min, in 1 dB steps (IF Output)
- Noise Figure: 15 dB max. at max gain setting

Option #2:

- Receiver with 1-18GHz tuning capabilities
  - ♦ Optional frequency extensions:
    - – 100-999 MHz (100MHz BW only)
    - – 18-26.5 GHz
    - – 18-40 GHz
- Bandwidths: 50|100|200|500|1000MHz
- Gain: 60dB min, 65dB typical
- Gain Adjustment:
  - ♦ 30 dB min, in 1 dB steps (IF Output)
- Noise Figure: 15 dB max. at max gain setting

	Analog Bandwidth:	50/100MHz	200MHz	500MHz	1000MHz
Record Time (Hrs)	VR3 32TB:	14.8	7.4	3.0	1.5
	Subsystem 80TB:	37.0	18.5	7.4	3.7
	Subsystem 160TB:	74.0	37.0	14.8	7.4

Data Offload Capabilities:

- Dual-port 10/40GbE NIC
- Optional 100GbE NIC
- Portable 80TB RAID-50 eATX lunchbox
- 80TB (3U) or 160TB (4U) RAID-50 SSD subsystem

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Acquisition Server:

- Standard System:
  - Dual Socket, E5-2643V4 processors
  - 128GB Memory
- Standard Internal Storage Options:
  - 8TB internal NVMe RAID-0 SSD's
  - 16TB internal NVMe RAID-0 Upgrade Option #1
  - 32TB internal NVMe RAID-0 Upgrade Option #2
- Basic Form Factor:
  - 3U Rack Mount Server
  - 1U 50-8000MHz receiver
  - Optional 1U 1-18GHz receiver upgrade
  - 25.5" Depth
  - 1U KVM available upon request for rack mount server

GPS Options:

- Standard:
  - Internal TSync-PCIe GPS card
  - Accuracy to UTC: ±50 ns
  - 10 MHz Accuracy: $5x10^{-12}$ (average over 24 hours)
- Ultra-Stable (US-OCXO) GPS:
  - 1U EndRun Meridian II GPS Receiver with Ultra-Stable OCXO
  - Accuracy to UTC: ±10 ns
  - STS (1 sec): $5x10^{-13}$

Data Offload Options:

- 80TB RAID-50 Storage Subsystem
  - 3U Rack Mount Server
  - 24.6" Depth
  - Dual port 10/40GbE interface to VR3
  - Optional 100GbE interface
- 160TB RAID-50 Storage Subsystem
  - 4U Rack Mount Server
  - 24.5" Depth
  - Dual port 10/40GbE interface to VR3
  - Optional 100GbE interface

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