NASK

µRaptor

Portable Data Acquisition System

The µRaptor system is highly customizable for each individual's needs. Packaging options include a low power microATX lunchbox or short depth rack mount server, and a full-sized eATX lunchbox for extended capabilities.

Data Offload Capabilities

- Integrated dual port 10GbE
- Portable 80TB RAID-50 eATX lunchbox
- 80TB (3U) or 160TB (4U) RAID-50 SSD subsystem storage arrays for file offload

The µRaptor

is the latest generation of portable high-speed, low power, A/D acquisition systems

capable of digitizing an analog signal at rates from 300-1200 MSPS in 12-bit samples. The acquisition system is an open architecture platform that produces Midas blue files with platinum key words. The latest in storage technology enables continuous collection at one of three selectable bandwidths 80|160|320 MHz from an integrated analog prefiltered frontend. Record offload capabilities allow for post-collection archiving to a portable 80TB RAID-50 eATX lunchbox or fixed rack-mount 80/160TB RAID-50 external array subsystem.

FEATURES:

- Open architecture that produces Midas blue files (Linux OS)

- Integrated receiver with three selectable bandwidths: 80|160|320MHz

- Continuous collection of up to 320MHz bandwidth

- 8TB internal storage with optional external storage for extended recordings

- microATX portable lunchbox form-factor or 1U short-depth server

Analog Bandwidth:		80MHz	160MHz	320MHz
Record Time (Hrs)	uRaptor 8TB:	3.7	2.2	1.1
	Subsystem 80TB:	37.0	22.2	11.1
	Subsystem 160TB:	74.0	44.4	22.2

Signal Conditioning Options:

Integrated Internal Receiver:

- Receiver with 1-6000MHz tuning capabilities
- Bandwidths: 80|160|320MHz
- Gain range:
  - Minimum: -90dB typical
  - 30/45 dB gain with preamplifier Disabled/Enabled
- Noise Figure: 15 dB max. at max gain setting

Optional External Ruggedized Receiver:

- Half-ATR chassis
- 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 MHz
- 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

GPS Options

Standard:

- Internal TSync-PCIe GPS card
- Accuracy to UTC: ±50 ns
- 10 MHz Accuracy: 5×10^{-12} (average over 24 hours)

Acquisition Server:

▪ Standard System:

- Low-power, 16-core, D-1587 processor
- 64GB Memory
- Integrated 1-6000MHz receiver
- Integrated GPS Receiver- 8TB internal RAID-0 SSD's

▪ Basic Form Factors & SWaP:

- microATX lunchbox
  - 16.4"W x 13.77"H x 7.32"D
  - 25lbs
  - 180 Watts

- 1U short-depth rackmount server
  - 16.9" Depth
  - 35lbs
  - 180Watts

Data Offload Options

▪ 80TB RAID-50 Storage Subsystem

- 3U Rack Mount Server
- 24.6" Depth
- Dual port 10GbE uRaptor interface

▪ 80TB RAID-50 eATX Lunchbox

- 20.7"W x 14.7"H x 8.9"D
- 50lbs
- Dual port 10GbE uRaptor interface

▪ Ultra-Stable (US-OCXO) GPS:

- 1U EndRun Meridian II GPS Receiver with Ultra-Stable OCXO
- Accuracy to UTC: ±10 ns
- STS (1 sec): 5×10^{-13}

▪ 160TB RAID-50 Storage Subsystem

- 4U Rack Mount Server
- 24.5" Depth
- Dual port 10GbE uRaptor interface

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