

Mark 5 Status Report

EVN TOG

Dan Smythe
MIT Haystack Observatory
dsmythe@haystack.mit.edu

1 April 2004



Overview

- Current Status
- Serial ATA
- Mark 5B
- Hardware Bank Switching
- Reliability Issues

1 April, 2004

EVN TOG

2

Current Mark 5 Status

- About 70 disk systems are now deployed.
Including 9 at JPL for the Deep Space Network
- About 350 '8-pack' disk modules are now in use.
 - About 500 purchased
 - About 10 disk drives (0.4%) have failed.
- Several stations are now recording almost exclusively with Mark 5.
- IVS-R1114 was recorded on 6 Mark 5 units; now being correlated at Bonn.
- IVS-R&D-1 (RD0401) 1024 Mb/s 6 stations
- Real-time e-VLBI (no disks)

1 April, 2004

EVN TOG

3

Stations now recording exclusively,
or almost exclusively, with Mark 5

- Effelsberg
- Hobart
- Kokee
- Westford
- Wettzell

1 April, 2004

EVN TOG

4

Stations recording IVS-R1s with Mark 5

- Hart RAO*
- Hobart*
- Kokee*
- Medicina
- TIGO*
- Westford*
- Wettzell*
- * IVS-R1114

1 April, 2004

EVN TOG

5

Mark 4 Correlators

Mark 5A systems are now supported
on all Mark 4 correlators

- Haystack
- JIVE
- MPI
- USNO

1 April, 2004

EVN TOG

6

Mark 5 Software Status

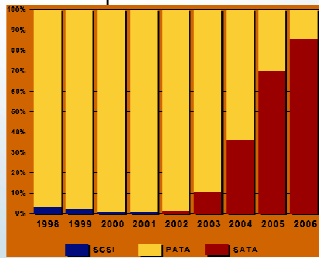
- Nearly all planned features are now supported with the exception of automatic bank switching (real soon now)
- All software/firmware is available on-line at the Mark 5 web site.
<http://web.haystack.mit.edu/mark5/Mark5.htm>

Documentation

Extensive on-line documentation is at <http://web.haystack.edu/mark5>

- Mark 5A Users Manual
- Mark 5A Test Procedures
- Assembly and Test of Modules
- Disk-module management and handling
- Mark 5A command set
- Mark 5A FAQ and tutorials
- Software updates
- Mark 5 memo series
- Mark 5 newsletter series

Serial ATA 1.0 - Replaces Parallel ATA - Desktop Interface Share



- Forecast assumes:
- Integration into core logic by mid-2003
 - No added cost to consumer
 - No vendor limitation

Source - IUC.com

Plans for Serial-ATA Support

- PATA and SATA disk modules will be interchangeable in Mark 5 chassis
- New SATA disk module
- New one-piece SATA module cover will be secured by the ejector lever, with a 1/4-turn screw lock.
- Can remove one drive from SATA module without disassembling the module
- No other changes
- SATA module price expected to remain about same.
- Haystack should have prototype SATA module any day now.

Mark 5B Data System

- Full VSI (VLBI Standard Interface) capability
- Up to 1024 Mbps
- Requires new Mark 5B I/O card (currently being designed)
- Eliminates need for Mark 4 or VLBA formatter
- Same chassis as Mark 5A
- Will include Station Unit capabilities for connection to Mark 4 correlators
- Will also provide adapter for Mark 4/VLBA DASs to provide VSI-compatible output
- Expect Mark 5B to be ready by the end of the year

Mark 5B Compatibility Matrix

			Playback					
			Mark 5A		Mark 5B			
Record	System ↓	Data input ↓	Play format →	Mark 4	VLBA	VSI	Mark 4	VLBA
	Mark 5A	Mark 4		X				
	Mark 5A	VLBA			X			
	Mark 5B	VSI			X	X		

In summary:

- Mark 5B can play only Mark 5B recordings (VSI format in/out)
- Mark 5A can play
 - All Mark 5A recordings
 - Mark 5B recordings will playback in VLBA-track-format (requires upgrade to current Mark 5A)