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To: Mark 5 Development Group

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Subject: Conditioning Mark 5 Disk Modules

The Mark5A or dimino control program must not be running; kill Mark5A (or dimino) before conditioning or running SSErase.

Normally, the control program can be killed with 'EndM5' or 'Enddim'. The stand-alone SSErase utility can be used to condition a set of disks. There are two settable parameters:

-m sets the message level (range -1 to 3, default 1)

-c sets conditioning (0 for FALSE, 1 for TRUE, default is FALSE)

For example:

SSErase -c1 -m0

goes through the conditioning process on whatever disks it finds. Conditioning amounts to a read-write cycle through the whole set of disks. With the message level set to 0, debug prints a progress report every minute. The progress report is the number of bytes per bus remaining to be read or written in the current read or write cycle.

Conditioning disks is recommended before recording, especially if they are to be recorded at 1024 Mb/s, or at a higher data rate.

Typical conditioning times:

GB	Seconds	Hours	Average Mb/s
8×120=960	9100	2H32M	1684 with Mark 5A or B
8×120=960	6900	1H55M	2226 with Mark 5B+
8×160=1280	7600	1H06M	2700 Estimated with Mark 5B+
8×164.7=1317	12000	3H25M	1711 Hitachi with Mark 5A or B
8×185.2=1482	14000	3H40M	1744 Hitachi with Mark 5A or B
8×185.2=1482	9400	2H36M	2528 Hitachi with Mark 5B+
8×200=1600	16000	4H20M	1641 Western Digital with Mark 5A or B
8×200=1600	11000	3H09M	2258 Western Digital with Mark 5B+
8×250=2000	18000	5H06M	1700 Hitachi, WD with Mark 5A or B

8×250=2000	12000	3H17M	2706 with Mark 5B+
8×300=2400	22000	6H10M	1730 with Mark 5A or B
8×300=2400	14000	3H50M	2755 with Mark 5B+
8×320=2560	23000	6H25M	1744 Western Digital with Mark 5A or B
8×320=2560	15000	4H10M	2733 Western Digital with Mark 5B+
8×400=3200	29000	8H04M	1744 Hitachi with Mark 5A or B
8×400=3200	18000	5H00M	2800 with Mark 5B+
8×500=4000	36000	10H08M	1754 Seagate with Mark 5A or B
8×500=4000	23000	6H23M	2787 with Mark 5B+
8×750=6000	55000	15H24M	1730 Estimated with Mark 5A or B
8×750=6000	34000	9H30M	2820 With Mark 5B+
8×1000=8000	46000	12H50M	2767 With Mark 5B+
8×2000=16000	100000	27H40M	2570 With Mark 5B+

These times are approximate for the typical case; but, if any of the disk drives in the module has a problem, times can be longer.

If conditioning takes longer than 10% more than the times listed above, try reconditioning the module. If the conditioning time does not improve after conditioning a second time, then the slow drive or drives should be replaced before the 8-pack is used at the highest data rates. The performance statistics reported by 'SSErase -c1' can be used to identify the slow drive or drives. A suspicious module should always be retested because disks might have been improved by the conditioning process. Note that a slow, but fully functional, 8-pack is OK to use at lower data rates.

For an explanation of the meaning of the "SSErase STATS" numbers, see the "get_stats" and "start_stats" commands in the "Mark 5A Command Set Memo" <<http://www.haystack.mit.edu/tech/vlbi/mark5/docs/command5a.pdf>>, or in the "Mark 5B Command Set Memo". Note that SSErase does not report the <replaced-block-count>, which has no meaning when conditioning.

The latest version of this file can be found at
<ftp://gemini.haystack.mit.edu/pub/mark5/Conditioning.txt>

Dan L. Smythe - 1 June 2012 - MIT Haystack Observatory