

Linux not only satisfied the requirements to install MIDAS (C and Fortran compilers plus X11) but it also complies with ANSI-C and POSIX standards. In addition, it includes all the network software necessary to integrate the PC into a LAN. Linux is supported by the Free Software Foundation which also provides other public domain software (like GNU).

The popularity of Linux has increased enormously in the last months (as indicated by the "linux" newsgroup, one of the most active newsgroups on USENET), and with it the interest of the Astronomical community for having MIDAS ported to it. This became apparent during the 5<sup>th</sup> ESO/ST-ECF Data Analysis Workshop where the MIDAS Group showed the progress with PC port.

Now, the situation has improved substantially and we are glad to announce that the complete "core" of MIDAS has been successfully implemented and verified on Linux SLACKWARE 2.01. Some other MIDAS packages have also been tested by their authors (like WAVELET, PEPSYS, ECHELLE and LONG). A pre-release of the 93NOV release has already been distributed to several test-sites for a complete check-out.

The Graphic User Interface (GUI) packages for MIDAS are being ported to Linux. Two of them, XHelp and XDisplay, are already available while the rest will follow soon. The MIDAS GUIs are based on OSF/Motif which is a licence

Table 1: Configuration of PC test system.

Hardware	Software
i486DX/25 20 Mbytes RAM Adaptec 1542B SCSI board 1 Gbyte SCSI hard disk WD-8013 Ethernet board Local Bus S3 Video Card	Linux SLACKWARE 2.01 0.99.pl12 cc: GNU compiler 2.4.5 (included) f2c: f77 to C translator 22 (included) X11 R5 (included) Motif 2.1 (not required) MIDAS beta-release 93NOV (28 Mbytes)

produce not included in the distribution of Linux. Thus, we can only distribute them in binary executable form as an option in the distribution tape. They will also be available under our "anonymous ftp" account.

The hardware and software configuration for the test system is given in Table 1 for information only. It does not mean to be the unique or minimum hardware setup. MIDAS requests only a 386 CPU, Linux release 0.99pl12 or higher, a minimum of 16 Mbytes of memory and some disk space depending on the amount of data needed. With shared libraries, the MIDAS executables and help files take around 30 Mbytes.

Table 2 gives a comparison of the performance of some MIDAS tasks on a PC and SPARCstation 2. It should be noted that on Linux there is no real Fortran compiler but a Fortran-to-C translator, and access to the disk on SPARCstation 2 is about 5 times faster than on our PC.

Both SunOS and Linux used the

MIDAS shared library. The C-Whetstone benchmarks by H.J. Curnow and B.A. Wichman (1976, Computer Journal, Vol. 19, No. 1) were used to compute the "cwhetstones". The last columns with MIDAS benchmarks refer to the `filter/median` command executed on a 1000x1000 image and the Wavelet tutorial written 100 % in C code.

Besides the official distribution of MIDAS in source form, we intend to make a fully installed version for Linux available on the `midas ftp` account. It will be located in a subdirectory called "linux" and be available in two forms: one with sources ( $\approx$  60 Mb) and another with only binaries (28 Mb), all packages included.

In order to limit our administrative overhead, we will not distribute the ESO-MIDAS PC/Linux version to individuals but only to registered sites. Thus, we will give MIDAS site managers permission to distribute PC versions of MIDAS to people associated with their institute.

Table 2: Performance of MIDAS on a PC/Linux system.

System	Core install	Size of core	Cwhetstones	Filter	Wavelet
PC/Linux, i486DX/25	49 min	11 Mb	10 MIPS	2435 sec	313 sec
SUN SPARCstation 2	30 min	26 Mb	10 MIPS	2045 sec	405 sec

## DDS/DAT Tape Cartridges as New ESO Tape Standard

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The 9 track 1/2" tape format has during the last many years proved to be a very reliable tape standard for the exchange of data. Its main disadvantages are the relatively small data capacity per volume (approximately 200 Mbyte for a 2400-foot tape written with 6250 bpi) and very bad data density in terms of Gbyte per volume or mass. Large CCD detectors can now easily produce over a

Gbyte of data per night. These facts demand that a new standard for data exchange must be adopted to facilitate easy transport of data acquired at La Silla.

Several aspects must be considered when choosing a new standard. The media must be reliable both in the sense of data security and with regard to support from multiple independent ven-

dors. Its total storage capacity and data density are also important factors. Data transfer rates and speed of positioning on the media should be considered. Since many user sites would need to purchase devices for the chosen media, the price of both media and drives cannot be disregarded. A crude comparison of different media is given in the table, where values for the relative cost

and speed are only indicative. The "forward" speed indicates the time for a fast forward positioning on a file and depends on the size of the files being skipped. CD-ROM was included for comparison only since it is a read only medium. Drives for writing CD-ROMs are becoming available but are still rather expensive as shown in the table.

Weighing the different factors, the DDS/DAT tape cartridge seems to be the better choice. A main point is the very good operational experience with DDS/DAT tapes used during the last two years for transferring data from the NTT to the ESO archive in Garching. It has reasonable storage properties and is supported by multiple independent manufacturers. The lower price for

drives and a relative fast positioning on files are also important factors.

Thus, the DDS/DAT tape format is adopted as the new standard for export of data from La Silla. Hardware compression is not used since a common standard has not been defined for this

medium. It will still be possible for users to request their data on 1/2" tapes but by default DDS/DAT tapes are provided. The Exabyte format is also available but users who want their data on this medium must perform the copying themselves.

Media	Capacity	Density		Cost		Speed	
		Gb	Mb/g	Mb/cm <sup>3</sup>	media	drive	rate
1/2"	0.2	0.2	0.1	1	12	0.8	92
MO-disk	0.6	3.1	2.8	7	4	1.4	1
CD-ROM	0.6	5.7	3.3	1	(20)	0.4	1
QIC	1.0	3.7	2.7	3	1	1.0	380:
DDS/DAT	2.0	47.6	27.8	1	3	0.5	10
Exabyte	5.0	64.9	35.8	1	4	0.5	15

## ESO/OHP Workshop on Dwarf Galaxies

From September 6-9, 1993, more than 90 astronomers from all over the world met at the Observatoire de Haute-Provence (OHP) for a workshop on "Dwarf Galaxies" jointly organized by ESO and OHP.

Dwarf galaxies are inconspicuous, faint and small stellar systems which, until recently, have largely been neglected. The much rarer giant spirals and ellipticals, more visible, attract more attention. This is mirrored by the fact that there have been only two meetings on this subject before, one in 1980, organized by ESO in Geneva, and one in 1985 in Paris, organized by the Institut d'Astrophysique.

Today, dwarf galaxies are recognized as prime laboratories for the study of some of the most burning issues of astronomy, such as structure formation, galaxy evolution, star formation, and dark matter. The number of workers in the field is growing very rapidly. The response to the announcement of the present workshop was accordingly large. This clearly shows the need for more meetings on this subject.

Talks and posters about every aspect of dwarf galaxies were presented. There have been a number of hot topics, such as the question of dark matter in the local dwarf spheroidals, the big holes in the HI component of dwarf irregulars,

the possible discontinuity between normal and dwarf ellipticals, and star formation.

Although there was clearly an atmosphere of unanimity about the subject, it was amusing to see that there is apparently not yet a consensus as to the definition of what a dwarf galaxy is. But there is nothing wrong with this. A physical definition of the subject would imply an understanding of the physical nature of dwarf galaxies. While we are still far from this goal, the workshop has brought us a good deal closer. . . .

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