CSC INTERFACE

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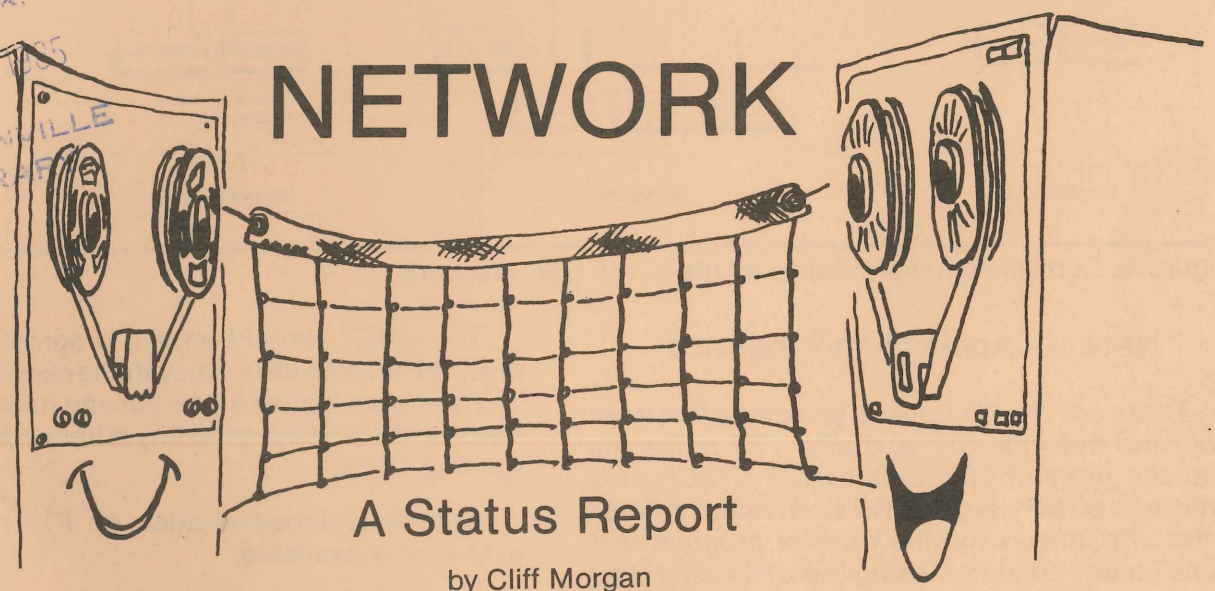

A Status Report

by Cliff Morgan

In the October–December '81 issue, we explained the CSC distributed computer network. We gave an overview of the hardware and software components of the network, then concluded with a brief description of the CYBER file transfer program, *FTP*.

More computers have been added to the network since then and the program *FTP* has been completed and documented. This article summarizes the status of the network.

Network Configuration

Figure 1 (page 2) shows the current network configuration, though the DADCAD system will not be operational until September. Each of the computers is linked to a CATV (Community Antenna Television) coaxial cable by a Hyperchannel processor adapter. Communications between Beaverton and Wilsonville or Walker Road occur over the Tektronix microwave system via Hyperchannel link adapters. Table 1 (page 2) gives a description of each computer system shown in Figure 1.

For the latest listing of all computers available on the network, refer to HELP,NETWORK on the CYBER.

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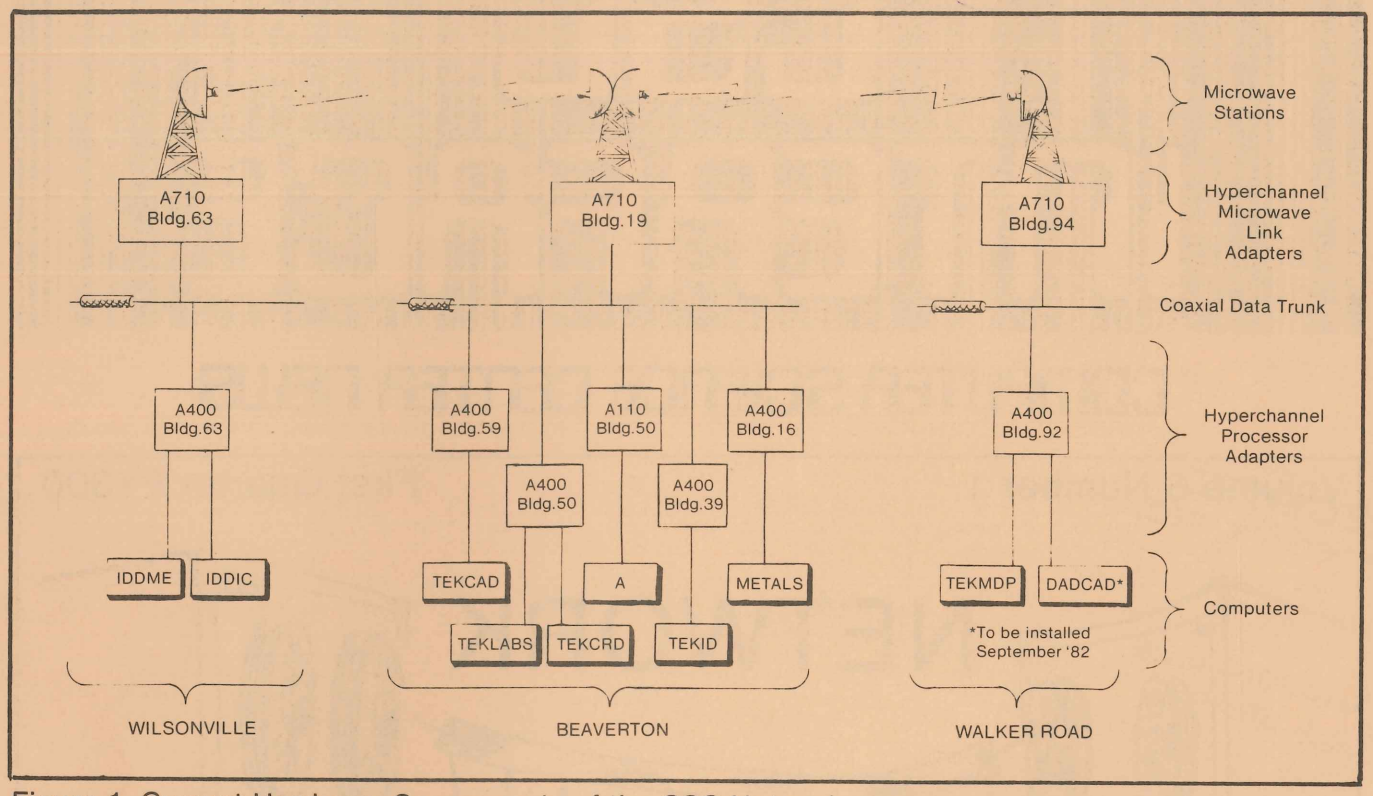


Figure 1. Current Hardware Components of the CSC Network.

Network Application Programs

There are two file transfer programs that work with the network, *FTP* and *uftp. FTP* is the file transfer program that runs on the CYBER. It is written in SYMPL by the CRD staff and is modeled after *uftp. uftp* is the file transfer program that runs on any computer using the UNIX operating system. It is part of the UNET package purchased from 3COM Corporation and is written in the "C" language.

The UNET virtual terminal program, *uvtp*, is also available on all UNIX systems except TEKID. This program allows a user on any network host running UNIX to log-on to any other network host running UNIX.

Complete documentation on *FTP*, *uftp* and *uvtp* is now available:

FTP writeup: CYBER users can get this by typing WRITEUP,FTP. The writeup can then be printed at an RJE station.

Name	Machine – Op System	Group	Location
A	CYBER 175 – NOS	CSC Computer Resource Dept.	Bldg. 50
METALS	VAX 11/750 – VMS	Metals Production Engineering	Bldg. 16
TEKCAD	VAX 11/780 – UNIX	Monolithic Circuits Engineering	Bldg. 59
TEKCRD	VAX 11/780 – UNIX	CSC Computer Resource Dept.	Bldg. 50
TEKID	VAX 11/780 – UNIX	Instruments Division	Bldg. 39
TEKLABS	PDP 11/70 – UNIX	Tek Labs Applied Research group	Bldg. 50
IDDIC	VAX 11/780 – UNIX	IDD Integrated Circuits CAD	Bldg. 63
IDDME	VAX 11/780 – VMS	ME CAD/CAM Development group	Bldg. 63
TEKMDP	VAX 11/780 – UNIX	Microprocessor Development Products	Bldg. 92
DADCAD	VAX 11/780 – VMS	Design Automation Division CAD/CAM	Bldg. 92

Table 1. Listing of Network Computers.

uftp and uvtp descriptions: UNIX users will find these in Volume 1 (Section 1) of the UNIX manual. This manual may be ordered from CSC librarian, Georgene Kayfes (ext. 6863, d/s 50–454). The *uftp* and *uvtp* descriptions are also available on-line by typing the UNIX commands *man uftp* and *man uvtp*, respectively.

Plans for the Network

A VMS file transfer program will be completed soon. This program will allow computers running the DEC VMS operating system to access (or be accessed from) any other host on the network. The "user" portion of VMS FTP is already working, meaning that a computer such as IDDME (see Table 1) can access files on other hosts. By the time this issue goes to press, the "server" portion should be completed, meaning the files on IDDME can be accessed from other hosts.

Though not shown in Figure 1, five DEC computers (two VAX 11/780s, two PDP 11/44s, and one PDP 11/70) will soon be connected to the network via Ethernet hardware. This is a lower-cost network scheme developed by Xerox Corp. It will interface to the rest of the network via the TEKCRD VAX computer in Buiding 50. The same network applications programs (like FTP) will also work with the Ethernet portion of the network.

Looking further into the future, a network mail transfer program is planned, allowing the sending of messages between users, or groups of users, connected to any network host.

If you would like more information on the network and how you can become part of it, contact **Tim Fallon** at ext. 5471.

CYBER Record Manager

If you have an application which requires fast, on-line access to large amounts of data, CRM AAM (CYBER Record Manager, Advanced Access Methods) may be just what you need. If your existing System 2000 application uses too much memory, or is painfully slow when used interactively, you might consider converting to AAM. If you are currently using a "home-grown" I/O package, you should definitely look into AAM as a rational alternative.

AAM is a record I/O package which supports three file organizations (corresponding to varying emphasis on random vs. sequential processing) and a broad range of record organizations. It is very efficient with respect to disk space and access times, and requires very little central memory. AAM can be called from any language that supports the FORTRAN subroutine calling sequence. This includes such languages as PASCAL, COBOL, ALGOL, SYMPL, and COMPASS.

Records in a file may be accessed randomly by specifying the value of a "primary" key, which must be unique within the file, or by specifying the value of an "alternate" key, which need not be unique. Inquiries such as: "Retrieve the first record whose key is greater than..." may also be made on AAM files. Records may also be accessed sequentially, beginning at any position in the file.

There are a number of utility programs that accompany AAM, allowing you to:

- Define and create a new file.
- Add alternate key fields to a file.
- Analyze the performance characteristics of an existing file.
- Analyze the hashing algorithm (for hash-addressed file organization).
- Determine an appropriate block size (for the indexed-sequential file organization).

In addition, the FORM utility may be effectively used to perform "global" operations on AAM files.

For more information about AAM, see the CYBER Record Manager Advanced Access User's Guide, or contact the Applications Support group, 50–454.

– Dale Brayden

Debugging Aid

Most people seem unaware that the CYBER has a good interactive debugger. This debugger works with FORTRAN (FTN and FTN5) and BASIC.

(Continued next page)

In its most basic mode, this debugger allows a programmer to examine variables any time during a program's execution, even *after* a fatal execution error. Another very useful feature is the ability to stop the program at any selected point (e.g., LINE 3 of subroutine BOMB).

All commands are symbolic in nature, which means you can ask for variable "X" in subroutine "BOMB" with a command like: D P.BOMB&X (Display, in program module BOMB, the variable X). There is even a way to set the program module name so that "D X" would initiate the same command.

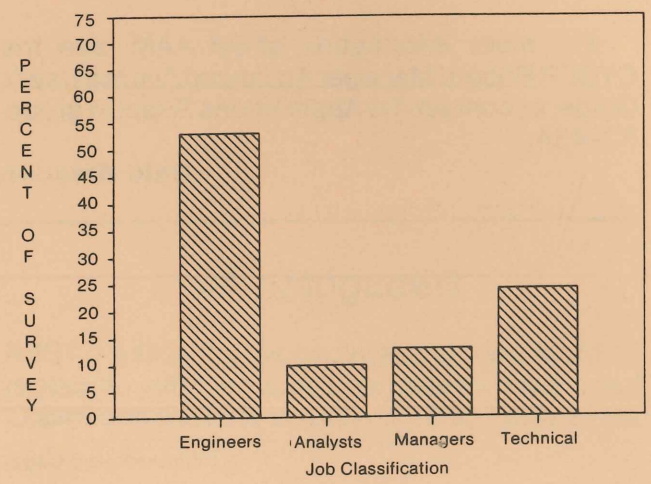
No program modifications are needed, but it is necessary to do a special compile and link.

More information can be obtained by typing WRITEUP,DEBUG or by obtaining the CYBER INTERACTIVE DEBUG manual (type MANUAL and follow the instructions given).

– Kurt Krueger

Survey Results

The results of the "User Survey" (*CSC INTERFACE, Vol.5, No.1*) have been tabulated and are presented below. There were 184 survey forms returned. This is about 20% of the number of people who receive the *CSC INTERFACE*. However, this sample should reflect the thoughts and desires of most of the user population.



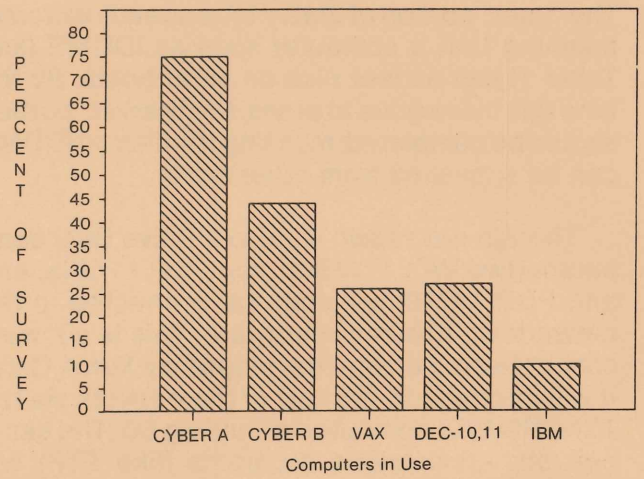
Our respondents rated the Computer Resource Department's services as follows:

94% – Applications support and user assistance is average or better.

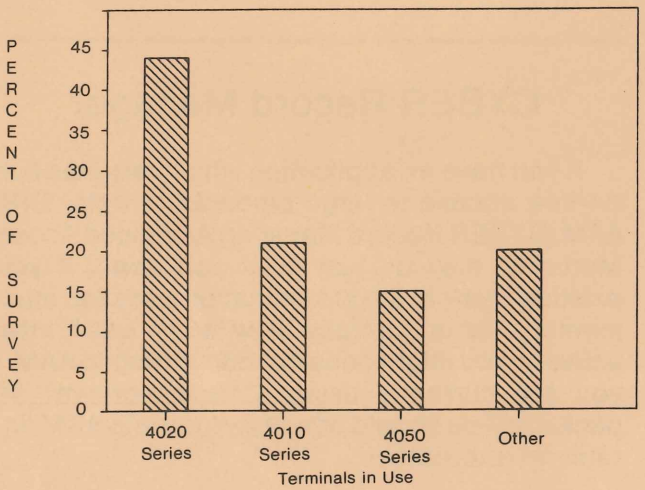
91% – Response to system problems is average or better.

70% – Communications to CYBER site is average or better.

98% – Helpfulness and friendliness of computer operators is average or better.



Approximately 18% of the respondents are using a personal computer. About 15% of those who do not now use a personal computer are planning to have one within the next year (for more statistics on the use of personal computers, see the article *Personal Computer Use* elsewhere in this issue).



Most of the comments received gave us a rating of GOOD in their overall impression of software and hardware services available through the Computer Resource Department: 76% were favorable or neutral while 24% had negative comments or suggestions for improvements. Some typical examples of responses are:

"Good! Had excellent help when we had major problems with our software during 'A' machine conversion."

"Far and away the best at Tektronix, and very good compared to other institutions and companies."

"No major complaints except for slow Develcon response."

"I've never been disappointed."

"I use CYBER when I have to as a last resort."

"Services are wide in variety and relatively easy to obtain."

"Please provide classes on UNIX."

"Very good, though it would be nice to have a good screen oriented editor (on CYBER)."

For those of you who are interested in the answer to that last comment, please see the article, *Screen Editor*, located elsewhere in this issue.

We were glad to hear from you, and thank you for answering our survey. We will try to act on many of your suggestions and welcome additional comments. One way to send suggestions is to type: LUCY on the CYBER.

Please note that all statistics and conclusions appearing in this report and any other reports discussing the results of the computer user survey are based solely on the 184 survey forms received.

If you would like more information on the results of the survey, please contact **Carol Golding**, ext. 6717.

552 is Coming!

The Computer Resource Department will be upgrading the operating system and product set (compilers, loaders, etc.) to NOS 1.4, PSR level 552 this fall. This is mainly a "bug" fixing release.

Level 552 will not cause a great deal of changes. However, there will be a few noteworthy product changes in the form of enhancements. For example:

1. CID (CYBER Interactive Debugger) will be available from COBOL5.
2. A new command in CID (STEP) enables you to gain control after "n" lines or procedures have been executed.
3. FTN5 will support OVCAPS (as described in the manual).

When 552 arrives you should then update your manuals with all those revisions we've been sending you. To stay abreast of what is happening watch the NEWS and check HELP,552 occasionally.

Screen Editor

There were several requests from the "User Survey" for a screen based editor on the CYBER. This is a valid request which we hope to be able to fill. The bad news is that the present operating system does not have some critical features to enable the creation of a reasonable screen editor.

Some successful screen editors have been written at universities, but the good ones all rely on a special smart terminal (custom-built) which ends up doing most of the work.

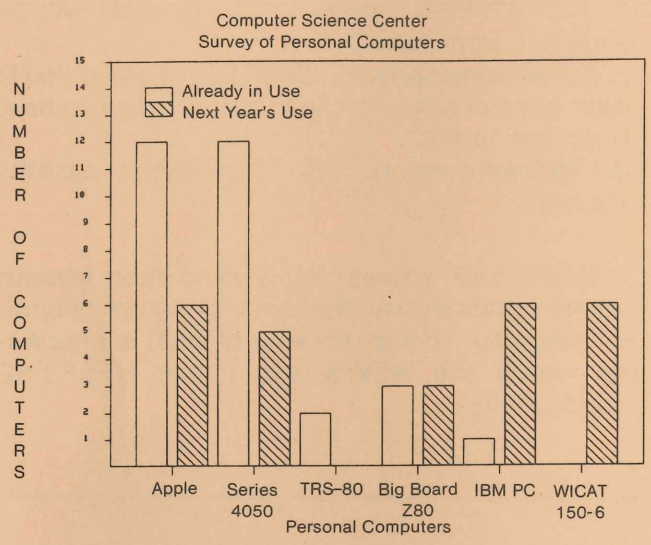
The prognosis is somewhat good, as CDC's latest operating system (NOS 2.0) has the needed features to support a screen editor (and indeed, they even offer a screen editor). The "somewhat" arises because we won't be on NOS 2.0 until about a year from now.

– Kurt Krueger

Personal Computer Use

More data from the survey

From those who responded to the survey, two major trends seem to be apparent in the use of personal computers. First, there appears to be a shift from the use of Apples and 4050 series to other machines (see graph). With the flood of new, cheaper and more powerful microcomputers, this trend will surely continue. Second, of those who responded, 18% are now using a personal computer. Of those who aren't using a personal computer now, 15% say they will be using one within the next year.



Number of computers (by type) showing significant shifts from present to future use. Miscellaneous types have not been included.

Because "use" was the measure, rather than "own," these figures are not strictly additive. However, it is probably safe to say that 25-40% of the respondents will have some experience with a microcomputer local processor/workstation within the next year.

The Computer Science Center recognizes the significance of the microcomputer as a personal tool for enhancing computer use productivity when used as a local processor, in a network of other microcomputers, or for preprocessing and communications with larger machines. The CSC has begun to study the issues of standardization and compatability with respect to hardware and software in order to provide support for personal computer users interacting with the CSC computers.

– Steve Rogers

REGRESS

REGRESS is an easy to use statistical curve fitting program. It computes, plots, and gives you the constants for the best curve fit of your data to a choice of linear, exponential, natural logarithmic, or power formulae. The required data format is:

```
Title line
X1 Y1
X2 Y2
 :  :
Xn Yn
```

for n≦50. The data pairs may be in any format recognized by a FORTRAN free-form read. For example:

```
Title line
22.04  .015
41.83  .045
31.18  .025
50.27  .075
```

To execute the program, type:

```
GET,REGRESS/UN=ABØØGNE
REGRESS,filename
```

The plot will remain displayed until the RETURN key is depressed.

For more information, contact **Gordon Ellison**, ext. 6441.

HELP and WRITEUP Files

HELP files added .....

REGRESS	STAB5	SMUG
MECAD (formerly STRUCT)	PCBX	SUPERB

HELP files revised .....

VARIAN	OPAMP	COMPACT
IGL	GETMODL	SPICE2
NETWORK	TRNLIB2	CURVET
UNIMAC	LUMPCAD	UNILINK
UNIDOWN		

WRITEUPs added .....

DEBUG FTP

WRITEUPs revised .....

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People and Numbers to Know

Department/Service	Name	Ext	D/S
COMPUTER SCIENCE GROUP	**Jerry Sullivan**	**6833**	**50-487**
• SOFTWARE CENTER	**Chuck Martiny**	**6834**	**50-487**
• SCIENTIFIC COMPUTER CENTER	**Tom Bohan**	**6806**	**50-484**
COMPUTER RESOURCE DEPARTMENT	**Bob Mainero**	**5247**	**50-454**
Operations Support Manager	**Dawn Vance**	**5068**	**50-454**
Hardware Coordinator	Jeff Mulick	5007	50-454
Data Communications Support*	Mary Anne Feeback	5024	50-454
Public Support (user areas)	Jeff Mulick	5007	50-454
Computer Operations Manager	Gayle Woolhiser	5069	50-454
Computer Operators (I/O room)	staff	5104/07	50-454
Computer Operators (console)	staff	5143/90	50-454
User Numbers/CSC Manuals	Georgene Kayfes	6863	50-454
Network Operations (Wilsonville)	Craig Wilcox	W1 3037	63-397
Systems Manager	**Andy Davidson**	**5282**	**50-454**
Systems Project Leader	Ken Hadfield	5032	50-454
Systems Programmers/Analysts	staff	5030	50-454
Network Project Leader	Tim Fallon	5471	50-454
Remote Systems Project Leader	Greg Harris	5413	50-454
Applications Support Manager	**Imants Golts**	**6356**	**50-454**
Scientific Applications Project Leader	Kurt Krueger	6722	50-454
User Assistance	Paul Hoefling	4004	50-454
Statistical Programs	Carol Golding	6717	50-454
N5500, PERT	staff	6353	50-454
Data Base and Utility Project Leader	Ingrid Palm	6351	50-454
Thermal Analysis Project Leader	Gordon Ellison	6441	50-454
Decision Support Systems	Steve Rogers	2504	50-454
Technical Communications Manager	**Carolyn Schloetel**	**1762**	**76-036**
Technical Writing Project Leader	Cliff Morgan	1764	76-036
HELP file maintenance	Nancy Peate	1763	76-036
Production Scheduling Project Leader	Lola Janes	1771	76-036
CAD/CAM, CAI Project Leader	Rich Amber	1765	76-036
MICROPROCESSOR SUPPORT MANAGER	**Lynn Saunders**	**WR 1910**	**92-134**
Microprocessor Software	Sue Ann Smith	WR 1890	92-134
Microprocessor Hardware	Ferrous Steinka	WR 1920	92-134
CAD/CAM DEVELOPMENT MANAGER	**Jack Hurt**	**WR 1345**	**92-112**
4081-CAD Project Leader	Jim Murphy	WR 1146	92-112
Automated Routing (PIRATE) Project Leader	Roger Bonzer	WR 1152	92-112
Circuit Simulation Project Leader	Graeme Boyle	5724	50-454
Component Library Project Leader	Phil White	WR 1145	92-112
Mechanical CAD/CAM Project Leader	Ron Bohlman	W1 3436	63-397

*For Telecommunications repair, call ext. 5040

Computer Resource Department
System Availability Statistics
FY 200 Average

CYBER 175 System Availability	**99.36%**
Downtime due to software	0.29%
Downtime due to hardware	0.13%
Tek downtime	0.07%
Unresolved failure	0.03%
Interruptions due to frontend	0.13%
MTBF	109.77 hours

CYBER 170/720 System Availability	**98.05%**
Downtime due to software	0.09%
Downtime due to hardware	1.62%
Tek downtime	0.08%
Unresolved failure	0.02%
Interruptions due to frontend	0.14%
MTBF	69.43 hours

Frontend Availability	**99.80%**
Downtime due to software	0.04%
Downtime due to hardware	0.07%
Tek downtime	0.09%
Unresolved failure	0.01%
MTBF	126.39 hours

CAD/CAM VAX System Availability	**98.60%**
Downtime due to software	0.18%
Downtime due to hardware	0.85%
Tek downtime	0.34%
Unresolved failure	0.27%
MTBF	41.45 hours

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