

Section 1

SYSTEM CHARACTERISTICS

In this section:	See page
System Summary.....	1-2
Operating Facilities.....	1-2
Multiprogramming and Multitasking.....	1-2
Task Dispatching.....	1-3
Shared Disk Files.....	1-3
Software Facilities.....	1-3
Office Processing Software.....	1-3
Data Entry Software.....	1-4
Data Management Software.....	1-4
Distributed Systems Software.....	1-4
Utility Software.....	1-5
Program Development Software.....	1-5
File System Software.....	1-5
Data Communications Software.....	1-5
System Control Software.....	1-6

Summary This section provides an overview of the operational characteristics and supporting software of the Honeywell Bull GCOS 6 MOD 400 Executive.

SYSTEM SUMMARY

GCOS 6 MOD 400 is a disk-based operating system that supports multitasking, real-time, and data communications applications in one or more online streams. In addition, program development and other non-interactive applications can be performed concurrently in multiple absentee streams.

MOD 400 is a multifunctional system capable of supporting a variety of processing functions. You can perform office processing tasks, develop and execute applications software, transmit files to other computers, and enter jobs for execution at remote sites.

MOD 400 can be configured to process different functional applications concurrently. For example, you can create and edit documents, run your own data processing applications, and communicate with a host processor all at the same time.

MOD 400 provides a screen-oriented interface to system and user applications. When you access the system, you are presented with a menu of application categories. You select your desired application by making choices from menus. You specify the information needed to run the application by filling out the form (if any) associated with the application.

OPERATING FACILITIES

MOD 400 supports multiprogramming, which is the concurrent execution of multiple tasks running under one or more task groups. Each task group owns the resources necessary for execution of an application program (one or more related tasks). The task group runs independently in its own operating environment while it shares the resources of the system.

Multiprogramming and Multitasking

When you define the environment to run more than one application task group concurrently, you are multiprogramming. In this environment you can execute each task in a task group sequentially, or you can execute each task concurrently (which is multitasking). You can run multiple online and absentee task groups concurrently.

Task Dispatching

The number of task groups that can run is limited by the number of central processors in your system, by central processor power, and by the amount of memory available. Concurrently executing task groups can occupy independent dedicated memory areas, or they can contend for space within a memory pool. When one task group is deleted, the released memory is available to other task groups in the same pool.

The system allocates memory dynamically and can relocate programs at load time. Once a task group requests execution, its tasks are dispatched according to their assigned priority levels. In a multiprocessor system, a task is dispatched when a central processor becomes free. When more than one task shares a priority level, tasks are serviced in round-robin fashion.

Shared Disk Files

Use of disk files by multiple independent users is facilitated by the arrangement of File System entries (directories and files) in a tree-structured hierarchy. Each directory or file is identified by a pathname. The pathname indicates the path from the root directory of the hierarchical structure of the containing directory or file. File reference can be simplified through the use of pathnames relative to a working directory that indicates a user's current position in the File System hierarchy. Access to shareable files and devices is controlled by file attributes and concurrency procedures.

SOFTWARE FACILITIES

MOD 400 offers you a comprehensive set of software components that perform a wide variety of functions. The following paragraphs briefly describe these software components.

Office Processing Software

Office Processing provides a wide range of functions including document processing, electronic mail, meeting and appointment management, document transfer, records processing, spreadsheets, communications, file management, document exchange, business graphics, and departmental information base support.

Data Entry Software

The data entry package is a form-oriented, source data collection facility that uses established data entry concepts in a menu-driven approach, making it easy to specialize and run procedures. Collected and validated data can be organized into a file and transferred to another system through the Distributed Systems software (described below).

Data Management Software

Data management software includes data base management, query and report writing, and transaction processing packages. Data base management packages are available for relational and network data bases. Query and report writing packages allow you to retrieve information from all supported data bases. Transaction processing packages support stand-alone systems as well as applications connecting to remote host processors through the Distributed Systems software (described below).

Distributed Systems Software

Using the packages provided by Honeywell Bull, your DPS 6 system can become a node on a network and can communicate with DPS 6, DPS 6 PLUS, DPS 7, DPS 8, and other systems across a variety of links.

DSA6 The Distributed Systems Architecture 6 (DSA6) package follows the layered structure of the Open Systems Interconnection (OSI) defined by the International Standards Organization. DSA6 is a set of networking products that includes a transport facility, a network terminal manager, a unified file transfer facility, a remote file facility, a remote batch facility, and an application interface facility. DSA6 also supports system to system Local Area Network (LAN) connections. In addition, DSA6 provides terminal access to IBM-hosted applications through the DSA/SNA gateway.

SNA6 The Systems Network Architecture 6 (SNA6) package emulates most operations of standard IBM devices so that ONE PLUS systems can interface with an IBM SNA network. SNA6 provides a remote job entry facility, a file transmission facility, an interactive terminal facility, and an application interface facility.

Utility Software

The MOD 400 system provides a comprehensive set of utility programs for performing frequently used programming functions. The programs used for the various system utility functions are invoked by menus or commands.

Program Development Software

A comprehensive set of program preparation components, utilities, and debugging aids is available for application development. Programming languages include Pascal, FORTRAN, COBOL, C, Ada, BASIC and Assembly language. Display formatting and control facilities provide the means for developing, using, and maintaining terminal display forms.

File System Software

The File System handles Input/Output (I/O) functions for each of the supported devices. It is designed to work in conjunction with the data management conventions established for each device. The File System software is available through system commands or, for an Assembly language program, through system service macrocalls.

Data Communications Software

Terminals and/or remote host computers can be accessed through the:

- Sequential file interface of the File System software
- Display formatting and control software
- Physical I/O interface of the system
- Various distributed systems facilities.

Specialized software components called Line Protocol Handlers (LPHs) support the different device classes and the various conventions established for data transfer.

System Control Software

System control software includes the components described below.

- Task Manager** The Task Manager handles the disposition of tasks within the system's central processor(s) and responds to requests placed against tasks. The Task Manager processes requests to activate tasks; returns control to interrupted tasks; and synchronizes, suspends, and terminates tasks.
- Clock Manager** The Clock Manager handles all requests to control tasks based on real-time considerations and responds to requests for the time of day and date in ASCII format.
- Swapper** The Swapper controls the allocation of swap pool memory and swap file space. It swaps tasks out when swap pool memory is required and swaps them back when the memory is available.
- Memory Manager** The Memory Manager controls dynamic requests for memory and the return of memory to group work segments. It also controls the allocation of all memory in independent (non-swapped) pools and of task groups assigned to the swap pool.
- Trap Manager** The Trap Manager handles the transfer of execution control from an executing program to a predefined trap location when a trap (a special condition such as a hardware error) occurs. The Trap Manager handles system traps and allows a task group to connect its own trap routines for specific traps.
- OIM** The Operator Interface Manager (OIM) manages all messages sent by task groups to the operator terminal or from the operator terminal to task groups. It allows you to create a disk-based log that captures all traffic involving the operator terminal.
- Loader** The Loader loads the root and overlays of a bound unit into memory from a disk.
- Listener** The Listener monitors a selected set of local and remote terminals. When you enter a Login command requesting access to the system at one of the terminals, the Listener causes a task group to be spawned for you.
- Command Processor** The Command Processor processes all commands. It must be the lead task of an absentee task group and can be the lead task of any other task group.
- Menu Subsystem** The Menu Subsystem provides you with a screen-oriented interface to the Executive and to applications. It also allows you to create your own menus and integrate them into the system.

Message Facility	The Message Facility provides a means for sending and receiving messages between tasks and between task groups.
Message Reporter	The Message Reporter extracts messages from the message library, formats them, and delivers them to a user-specified location such as a terminal, a program buffer, etc.
Error Logging	The Error Logging Facility provides a mechanism for accumulating statistics on memory errors and peripheral devices. Should the error-per-use ratio exceed a specified threshold, a warning message is sent to the operator terminal.