SERIES 60 (LEVEL 6)   RELEASE 2.1
ASSEMBLER/MACRO PREPROCESSOR

SOFTWARE RELEASE BULLETIN

CONTENTS

COMPONENT DESCRIPTION

Assembler Descriptions

The GCOS 6 Assembler is a two-pass language processor that accepts statements written in symbolic assembly language. These statements are translated into relocatable object text suitable for linkage with one or more object text modules from the Assembler or other Level 6 language processors. A program listing containing the source program and associated information may be obtained. Also, a cross-reference listing may be requested with all program labels alphabetized showing the line number where the labels are defined and the line numbers where the labels are referred to.

Use of the Assembler is modified via control arguments. There are control arguments to suppress object code generation and to request a cross-reference listing. Other control arguments may suppress, restrict contents, or redirect the location of the program listing. Also, there are control arguments to define the address mode (SAF, LAF, or SLIC) of the resultant object code. Commonly used defaults are defined for all of these control arguments.

Assembly language is highly symbolic, providing a wide range of data types and expressions, in addition to mnemonic operation codes for all current hardware functionality. Extensive addressing techniques are available providing the ability to access data from a four-word (64 bits) level to a single bit level.

The Assembler supports the programmable features of the Scientific Instruction Processor (SIP), Commercial Processor, the Stack and Queue facilities and the Memory Management facility.

The Assembler also provides a collection of pseudo-operations that are used to define data structures, common blocks and symbols; other pseudo-operations permit conditional assembly, user-defined operation codes and Level 6 linker information.

Macro Preprocessor Description

The GCOS 6 Macro Preprocessor provides a macro routine definition and substitution capability that enhances the Level 6 assembly language. The user may define single line abbreviations (macro calls) for a group of assembly language statements (macro routines) and subsequently insert these statements into an assembly language source program. The result is a specialized representation suitable for assembly by the Level 6 Assembler.

Use of the Macro Preprocessor is modified via control arguments. There is a control argument to define the size of main memory available for user-defined tables and stack space. Also, there is a TRACE option available that may be invoked to simplify the debugging of macro routines.

Within a source program, macro routines may be defined and referred to from an external library file. INCLUDE files provide another method of defining the source program, allowing flexibility in source program creation. Search rules facilitate the use of macro libraries and INCLUDE files.

Macro routines may define macro parameters and global macro variables. A set of macro functions to manipulate these parameters and variables as numeric or alphanumeric quantities is available.

The macro control language allows nesting and recursion of macro calls and provides an extensive conditional macro routine expansion capability.

DESCRIPTION OF THIS RELEASE

The GCOS 6 2.1 Release of the Assembler and Macro Preprocessor is a maintenance update to the GCOS 6 0110 and 0200 Releases of these products.

New Assembler Features Available With Releases 0200 and 2.1

o   The assembly language source input format permits comment lines to begin with a pound sign (#) or an at-sign (@). See Macro Preprocessor Features.

New Macro Preprocessor Features Available With Releases 0200 and 2.1

o   The Macro Preprocessor unconditionally generates comment lines that begin with #. These lines are statements with macro processing errors contained within them. Scanning the expanded source output file, or the assembly listing file for these comments easily identifies the location of user errors in macro processing.

o   The Macro Preprocessor upon request (via -IC or -TRACE control arguments) generates comment lines that begin with an @. These lines are macro control statements without errors.

o   A new macro function, Requote (?RQ), is available. This facility helps remove uncertainty about removal of apostrophes from alphanumeric entities.

o   Macro parameter references may now be nested to any depth level.

o   The Include-Comments control argument may now be requested via the new control argument -TRACE.

HARDWARE CONSIDERATIONS

The Assembler and Macro Preprocessor both operate within the minimal program development configuration in GCOS 6 Operating Systems. They run on all models of the Level 6: Model 23, Model 33, (including old 6/34 and 6/36) Models 43 and 47, and Models 53 and 57.

The Assembler requires approximately 13K words in which to load and execute. The Macro Preprocessor also requires approximately 13K words in which to load and execute.

SOFTWARE CONSIDERATIONS

The Assembler and Macro Preprocessor are both invoked by the GCOS 6 System Control Language Processor.

When Release 2.1 of the Assembler is invoked on MOD 400 Operating System, the following revision information is recorded:

ASSEM- 2.1-01/09/0808

When Release 2.1 of the Macro Preprocessor is invoked on MOD 400 Operating System, the following revision information is recorded:

MACROP- 2.1-01/08/1522

When Release 2.1 of the Assembler is invoked on MOD 600 Operating System, the following revision information is recorded:

ASSEM- 2.1-01/09/0914

When Release 2.1 of the Macro Preprocessor is invoked on MOD 600 Operating System, the following revision information is recorded:

MACROP- 2.1-01/08/1046

All files are closed and removed or released when the procedure is complete, and all requested main memory is returned.

Both processors may be permanently aborted via the break key functionality, causing them to return to command level.

RESTRICTIONS

Listed below are the known problem file (KPF) number of restrictions to this release of the Assembler and Macro Preprocessor known to exist at the time of unlimited release. Each entry refers to an entry in the maintenance known problem file.

Assembler Restrictions

None

Macro Preprocessor Restrictions

None

CLARIFICATIONS

Assembler Clarifications

None

Macro Preprocessor Clarifications

None

Component Sizes

The following list presents the resident code/files used by the Assembler and Macro Preprocessor:

Component	Resident Code	Sharable Files	Exclusive Files
Assembler	10,500 (plus default GET memory of 1K)	Input source file	Output object text file/Output listing file/Cross-reference work file
Macro Pre-processor	9,300 (plus default GET memory of 2K)	Input source file/Macro library directory file/Macro library files/ Output source file	None

PATCHES

The following patches have been applied to the Assembler and the Macro Preprocessor bound units on the released media:

o   Assembler - A5B21100, A5B212RT
o   Macro Preprocessor - none.

SOFTWARE ORDERING

Customer accounts should order software through their local sales representative.

Internal Honeywell organizations should order software via S/MISD ship schedule system (branch adminstrator).

PROGRAM MATERIALS

Release 2.1 of the Assembler and Macro Preprocessor consists of the following program materials:

Order Number

SHL928n   Executable binary format.

Where: n = Media type, as follows:

         F = Diskette (single-sided, single density)
         R = Diskette (double-sided, single density)
         E = 200 TPI Cartridge Disk
         J = 67MB Mass Storage Unit (Storage Module)
         N = 256MB Mass Storage Unit (Storage Module)
         V = Cartridge Module Disk (13 MB)

Diskette Identification

     Executable binary (MOD 400): ZSYS02 and ZSYS2A
     Executable binary (MOD 600): Not available

Cartridge Disk Identification

     Executable binary (MOD 400): ZSYS51
     Executable binary (MOD 600): ZMIN52

Mass Storage Unit (Storage Module Identification)

     Executable binary (MOD 400): ZSYS71
     Executable binary (MOD 600): ZMIN71

REFERENCE DOCUMENTATION

     The Assembler and Macro Preprocessor enhancements are docu-
mented in the following software manual:

Order No.	Manual Title	Revision	Date
CB07	GCOS 6 Assembly Language Reference manual	1	6/78
CB07A	GCOS 6 Assembly Language Reference manual, Addendum A		11/78
CB07B	GCOS 6 Assembly Language Reference Manual, Addendum B		08/79
CB07C	GCOS 6 Assembly Language Reference Manual, Addendum C		12/79
CB07D	GCOS 6 Assembly Language Reference Manual, Addendum D		12/79
CB08	GCOS 6 System Service Macro Calls 2		12/78
CB08A	GCOS 6 System Service Macro Calls Addendum A		7/79
CB08B	GCOS 6 System Service Macro Calls Addendum B		12/79

Additionally, the following software manuals provide helpful information:

Order No.	Manual Title
CB01	GCOS 6 Program Preparation
CB02	GCOS 6 Commands
CB06	GCOS 6 System Messages

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                               M I N U T E M A N   R E P O R T I N G   S Y S T E M
                                     K N O W N   P R O B L E M   F I L E
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KPF: W00784   UNIT: MACRO PREPRO   ENT: 800226 FWK: 009 UPD: 800226 FWK: 009 STAT: FX   SEVERITY: A   FIX REL: 2.2   *********

           PROBLEM: IN AN UNUSUAL CIRCUMSTANCE THE MACRO PROCESSOR MAY INCORRECTLY
                      CONCLUDE THAT THERE IS INSUFFICIENT WORK SPACE AVAILABLE TO COMPLETE
                      THE MACRO EXPANSION PROCEDURE AND PRODUCE A 230D ERROR. THE PATCH
                      ENCLOSED HERE REMOVES THE POSSIBILITY OF THIS ERROR.

           APPLICABLE CORRECTIONS TO: MACROP   M6-L   DATE ENT: 800226   FWK: 009   LOG# XW1012

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                      HP MPL211RT,/1571,(EDEF,EDEE),/1574,(CA14,CA04,0685,0485)
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           APPLICABLE CORRECTIONS TO: MACROP   M4-B   DATE ENT: 800226   FWK: 009   LOG# XW1013

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                      HP MPB211RT,/1571,(EDEF,EDEE),/1574,(CA14,CA04,0685,0485)
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