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OS-9 for 68k
Release Notes

Version 1.2

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Table of Contents

Chapter 1: Introduction

As part of Microware's policy of continued product development, Enhanced OS-9 for 68k version 1.2 represents a maintenance and update release to incorporate all of the improvements that have been introduced into the component parts.

Note

Files for OS-9 for 68k version 1.2 are updates to previous product releases. Although these files are intended to be installed on top or your existing version of OS-9, it is recommended that you complete a backup of your system before installation.

2

Chapter 2: Operating System

This chapter provides an overview of the changes and improvements to OS-9 for 68K since the last release. The following sections are included:

- **Operating System Notes**

Operating System Notes

The following section represents improvements and updates for OS-9 for 68K version 1.2.

Resolved Problems

- CF3289: Running floating point in continuous loop can cause the system to lock if **Abort** is pressed.

  This issue was occurring with both the MVME167 and MVME177 boards. It has now been resolved, as the `sysinit.a` file was updated. Both boards used a debouncing loop that became an infinite loop that checked the abort button register, waiting for the bit to clear.

- CF3316: The VDT68302 port `systype.d` has non-valid XTAL value.

  The `tk68302.a` source file did not support XTALFREQ with 20Mhz. The `tk68302.a` source has been fixed to support this frequency.

- CF7746: Incorrect module paths in 68K bootlist files.

  This problem occurred because the following port did not have correct paths to the inetdb and many NFS files/modules:

  MVME147

  MVME162

  MVME167

  MVME172

  MVME177

  MC328ADS

  The pathlists in the port directories of these ports have been updated.

- CF8345: The ROM image reordering in update affects sp360 ether address lookup.

  The .r's in the ROM makefile have been properly ordered, which solves this problem. However, the problems stems from the fact the hardware does not have hardcoded Ethernet address. The address should be obtained from the spqe0 descriptor.

- CF8509: The `rpcgen.exe` DOS program did not ship with Enhanced OS-9 for 68K 1.0.

  This is now included in the file lists/properly and will ship with future products.

- CF9360: The current OS-9 for 68K release does not include a `sys_ansicstart.r` file.

  The `sys_ansicstart.r` file will be included in future releases.

- CF9400: FASTCOM, FASTCOMM symbol usage is not consistent through the 68K ports.

  The `systype.d` files for all shipping ports that used FASTCOM have been changed to FASTCOMM.

- CF9507: There is a bug in SCSI driver for hard drive > 2GB.

  All current modules have been tested on 4GB drives and function properly.

- CF9542: Serial descriptor modules should ship with write access, since the `xmode` utility is used to change options on serial devices.

  The serial descriptors for all shipping ports have been updated with the write access permission.

- CF9612: The `SS_VolStore` setstat function code undocumented.

  Currently this SetStat is for internal use only. Customers who choose to use it do so under the constraint that the call could be changed in the future. Its usage is described below:

  The parameters for SS_VolStore are as follows:

  d0 = path number

  d1 = SS_VolStore

  d2 = pointer to freestat structure

  ```
  freestat structure:
          struct {
          int bsize; /* block size */
          int blocks; /* total blocks */
          int bavail; /* blocks available */
          int bcontig;/* largest contiguous area */
          } freestat;
  ```

  The structure is updated with current values when successful. When an error occurs, the error is return in d1 (with CC Set) and the structure is left unchanged. For 68k platforms, PCF implements SS_Volstore., RBF does not.

- CF 9782: With the following code segment, the optimizer will generate incorrect code when moving from optimizer level 0 to 1.

  ```
  _asm("xxx:");
        if ((status_reg) lustat->lu_irqmask != 0) {
            old_irq =
  irq_change((status_reg)lustat->lu_irqmask);
        }
  ```

  The bug was in the proto.h header file. The `irq_*` functions that used status_reg were incorrect. This header file has now been fixed.

- CF 9895: The `_m_exec` offset is not correct for 68K modules.

  The compiler was updated to fix this problem.

- CF10021: The `_os9_allpd()` library function is broke in `_os_lib`. It contained the `out_asm:` symbol which could not be resolved.

  The new version of `_os_lib` has the proper symbols resolved.

- CF10444: The system global `D_Elapse` is being cleared when inappropriate

  The kernel edition 372 has fixed this problem.

- CF10625: The TrueFFS utilities `ftdefrag`, `ftcheck`, and `filltest` for 68K do not work.

  These utilities have been fixed and now work for 68K.

- CF10688: `os_lib.l` is has 16-bit offsets in the code area for `_os_icept_stack`.

  The solution for this is to link a `.r` file that declares the variables `_os_icept_stack` and `_os_usr_rout` in local (short) memory space. The libraries are now compiled correctly such that the offsets should resolve to the correct size.

- CF10691: The `_gs_gfd` system call does not use size correctly. It will subtract one when it fills the 4-byte size.

  This call is changed so `fsize` subtraction accounts for all bytes transferred. `srtmem` of scratch memory allocated in `_gs_gfd()` and `_ss_pfd()` functions was also added.

- CF10781: The 68K `scsi1xx` SCSI driver exhibits unfair behavior. This occurs when accessing separate partitions on the drive, one partition may get exclusive access while accesses to other partitions may actually starve for time.

  This problem has been resolved. Various "waiters" for the device are now given access to it.

- CF10909: The `os_lib.l` library is still having 16-bit references compiled in `strapa.c`.

  The Enhanced OS-9 for 68k v1.1 libraries were compiled the long data module. This has been corrected so that all libraries are compiled as short data. This allows 16- bit data references to work properly as there are numerous a6 relative references in assembly code that must not be grater than +-15bits.

- CF11072: The `sc68360.a` serial driver used the wrong register when accessing IRQ section.

  This driver has now been updated such that proper register usage is applied.

- CF11565: Bug with 68360 and `clib.l`.

  The libraries were compiled improperly for Enhanced OS-9 for 68K. All of the C libraries have been recompiled with correct options and searched for long branches and "leas" that the assembler might need to convert to long references. Some assembly code did not allow for this by saving d7. This meant that if code compiled for cpu32/68020+ processors were to use 68000 CSL libraries/module, the d7 (SpanReg) might get corrupted if the assembler needed to extend the range of a branch. The standard C libraries now protect d7(SpanReg) whenever a 16 bit branch may need to be converted to a long branch.

- CF11581: On MVME172, the IP Reset Register is not being toggled during a soft reboot.

  The MVME172 `initext.a` contains code to reset the IP modules. This procedure appears to have changed for the "P" version of the board. Changes were applied and appear to function properly.

- CF11601: The `cmp.b` does not produce external reference for symbols.

  Consider the following assembly instructions:

  ```
  cmp.b    #SYMBOL,mem(a6)

  cmpi.b   #SYMBOL,mem(a6)
  ```

  If SYMBOL has been defined, then the two instructions yield identical code and behavior. However, if SYMBOL is not defined, then the `cmp.b` instruction is not linked correctly. The resulting code will compare to #0. This behavior has been fixed.

- CF11892: In the `cpu.l` library for 68000, the `get_sysglobs()` functions is using non 68000 instruction (`bsr.l`).

  This has been fixed so a 68000 compatible instruction is now used.

- CF12123: The sp82596 ethernet driver for the MVME162/167/172/177 boards needs to updated such that it uses the "simple mode" rather than the "flexible mode".

  This driver has been updated to use the simple mode. This has been done because of instabilities of the i82596 in very busy networks. While performance has degraded by 1%, it is very stable. There are now two versions of the driver: edition 15 is flexible mode (1% faster but can crash) and edition 115 is simple mode (1% slower but will not crash).

- CF12270: Ethernet is halting with kernel #374 and SP1 communications. The problem seems to occur when an `_os9_sleep()` follows right after the `_os_write()`.

  This problem has been tracked down and fixed in edition #50 of `sc8530nz`. The RTSTurnoff was not saving a0/a3. A3 was changed to point to DPRAM which is also the address of the first ethernet BD. RTSTurnoff was stomping the BD causing the ethernet to think it only had one BD to use which was routinely overrun.

Enhanced OS-9 for 68k Release Notes

Chapter 3: Host Applications

This chapter contains release notes for host applications used with OS-9 for 68k version 1.2. It includes the following sections:

- **Hawk Notes**

Hawk Notes

The following sections represent changes and updates for Hawk 2.3.

Resolved Problems

- CF11265,11377,10950: Debugging a thread causes access violations in the Debugger.

  Code was inserted to check whether a program forked a thread or a process. This code caused an error within OS-9 for 68K targets; the targets do not store information or fork threads in a similar manner. This problem has been fixed.

- CF11554: Hawk 2.1 68k bug-build modified files.

  The check to see if a file is out of date only worked if the current directory was the same as the project directory. This issue has been resolved. Currently in Hawk, the absolute paths of the filenames are made correctly; thus, the out of date check works correctly.

Known Issues

- CF3174: Problems building 68k assembly sources.

  There have been problems with assembly sources compiled under Hawk; the -bt option is called during the linking process. The -bt option is passed to the 68k assembler if long code references are selected in the **Project Properties** menu. If 16-bit code references are selected from **Project Properties** instead of 32-bit references, the assembler will not use the -bt option.

Chapter 4: Components

This chapter contains release notes for OS-9 components. It includes the following sections:

- **OS-9 Compiler Notes**

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OS-9 Compiler Notes

The following sections contain release notes for the OS-9 Compiler v2.5.

Resolved Problems

- CF10356: Ultra C library call `system()`.

  On OS-9 for 68K, this library call was incorrectly returning the status of the next available child process--not the forked shell--to run the command line. This problem has been fixed.

  In addition, the OS-9 for 68K libraries were changed; now they are built with short data and long code. They were previously changed erroneously to build for long data and long code.

- CF10982: Wrong code at higher optimization levels.

  The 68K back-end (be68k) was generating incorrect assembly language in some rare cases when floating-point and conditional operators were used. This issue has been resolved.

- CF11920: `_os_ss_popt` and `_os_gs_popt` do not correctly restore registers if there is an error.

  Register usage in `_os_ss_popt` and `_os_gs_popt` was corrected for OS-9 for 68k.

- CF12506: Param spill in `send_mess()` (be68K).

  This internal error was the result of an overflow of a 16-bit value within the back-end. This field has been widened to 32-bits, which corrected the problem.

MAUI Notes

Resolved Problems

- CF 2458: Maui driver for MC328ADC does not check for other active ports when initializing.

  This problem has been fixed. The `gx_328` driver has been updated. Since only one vport can be active on the MC68328 at one time, the driver will return error `EOS_MAUI_TOOCOMPLE` if another vport is already active.

Enhanced OS-9 for 68k Release Notes