

## 7. MP Code Summary

There are two types of Maintenance Panel codes: progress codes and error codes. Progress codes are placed in the Maintenance Panel at various stages of initialization. Error codes are those which freeze or blink the error number in the maintenance panel. All errors except the range errors are fatal.

All MP codes less than 9000 are generated by non-Lisp programs implemented directly in microcode or in Mesa, a high-level programming language in use at Xerox. MP codes from 9000 to 9999 are generated by an error in the Lisp system code.

### Summary of MP code ranges

Blank MP to 0099: Pre-boot diagnostics

0300-0399 Boot diagnostics

0600-0699 Memory diagnostics

0400-0499 Utility (Real time clock, etc.) diagnostics

0700-0799 Disk diagnostics (written in microcode)

0900-0999 Pilot OS

1000-1199 Disk Fault Analysis (10MB)

1300-1499 Disk Fault Analysis (42MB)

1600-1799 Disk Fault Analysis (29MB)

8888-8888 MP lamp test

9000-9999 Lisp

### Boot-time errors

0096 Insufficient real memory (<1MByte) for Lisp

0149 Usually right after power-on. Disk not ready. Safe and effective to 0-boot from

0200-0299 Booting phase 2 (Initial microcode)

0200 normal booting phase 2

0201 CP error in reading from boot device

0202 null Mesa germ installed in physical volume

0203 broken rigid disk boot chain (possibly intermittent)

0204 Illegal IOP port command

0205 CP Trap (CS parity or double-bit memory error)

0206 null diagnostic microcode in physical volume

0207 null Pilot/Mesa emulator microcode in physical volume

0208 null Mesa germ installed in physical volume

0217 Inconsistent Virtual Memory. Requires re-installation or try another partition.

0500-0502 Domino progress codes

0500 StartDomino Domino has started

0501 InitReadTOD Domino starting to read the TOD clock

0502 InitReadTODdoneReading of TOD clock completed (next MP number from Lisp)

0505-0599 Domino error codes

0505 CSParity CS parity error detected

0506 BurdockCPDisabled Burdock attempted to use EtherKludge

0507 CPBurdockDisabled CP attempted to use EtherKludge

0508 IOPBreak An IOP break with no IOP kernel

0509 IllegalIOPInIllegal IOP interrupt

0510 BadMapEntry Incorrect vm Map entry in IOP access.  
 0511 NoCPDmaComplete CP Dma operation failed to complete  
 0512 NoCPDmaChannel CP Dma channel not specified  
 0513 ReadCPPortDead CP not responding to Read CPPort  
 0514 WriteCPPortDeadCP not responding to Write CPPort  
 0520 StackOverflow task's stack has overflowed  
 0565 InvToneCmd Invalid keyboard tone generator comnd  
 0570 InvProcCmd Invalid cmd value in Processor CSB  
 0571 UnImplCmd Unimplemented cmd in Processor CSB  
 0572 SetTODError The Time-Of-Day could not be set  
 0576 LSEPctlOVR LSEP Control CSB overrun  
 0580 NoValidCommand Invalid floppy IOCB command  
 0581 UnImplFloppyCmd Unimplemented floppy IOCB cmd  
 0582 InvalidEscapeCmd Invalid Escape floppy cmd  
 0583 CommandTrack Floppy track register is not correct  
 0584 TrackToBig Floppy track number is too large  
 0585 BadDmaChannel Couldn't program Floppy Dma  
 0586 NoDmaEndCount1 External Dma End Count not set  
 0587 NoDmaEndCount2 Internal Dma End Count not set

#### 0900-0999 Pilot codes

0915 Pilot breakpoint. If 0915 occurs during the installation of the software, the pro could be a bad page on the rigid disk, the system cannot read the floppy disk, or a hard failure. Try running ALAG. If ALAG passes and Media Scan shows no new bad pages, the fl disk (software installation) is suspect.  
 0937 Trying to find out the time and date. Will hang in this state if no time server i responding, and the time has not been set on the machine since power-up. Time can be se within Interlisp (with SETTIME), by 2-booting the Installation Utility floppy, or by 5-b EI Fixed Disk Diagnostics floppy.)  
 0981 Trying to discover Ethernet pup host number. Will hang in this state if non-Lisp tries to perform Pup operations and no Pup ID Server responds.

#### 9000-9299 Interlisp-D microcode error detected

Most of these errors are indicative of some serious problem, probably hardware, and usua (but try ^D if you can't TeleRaid). The main exception is 9004 see description of code

9001 CSParErr Control store parity error  
 9002 StackErr hardware stack overflow  
 9003 IBEmptyErr instruction fetch unit empty error  
 9004 VirtAddrErr Attempt to reference virtual address >22 bits  
 9005 EmuMemErr double bit memory error or non-existent memory  
 9013 NegPcError inconsistent PC at FnCall  
 9014 applyUfn arg to apply not integer  
 9016 notFreeTrap stack allocation error  
 9024 Page fault in the page fault handler.  
 9048 ReFOvr page fault under page fault  
 9049 Ghost context switch  
 9051 BadUfnTable  
 9120 MiscErr opcode no such register  
 9121 MiscErr opcode bad 2nd byte  
 9127 PcNegError inconsistent PC at Punt  
 9136 CycleMaskbad caller  
 9129 M1Loc microcode error  
 9130 M2Loc microcode error  
 9131 M3Loc microcode error

#### 9300-9399 Lisp system code error (call to \MP.ERROR)

These codes generally indicate an error state in Lisp system code that cannot be handled break package. Most are "should never happen" cases that indicate a serious error; but particular, 9305 and 9318) may be much less serious. If possible, use TeleRaid to find information (press the Undo key to enter the TeleRaid server (cursor changes into "TeleRaid" and run the TeleRaid user from another machine). Even if you can't TeleRaid from another machine, several of these codes you can convert into a Lisp break if the state of the system is reasonably consistent and the error occurred under user code (rather than, say, the garbage collector): type ^B to the TeleRaid server.

Summary of TeleRaid server commands:

^B attempt to enter Break. If error is in a special system context, will change cursor to "CANT", indicating refusal to enter break.

^D perform Hard Reset/clear stack, flush all non-restartable processes.

^N continue from error. This is usually not possible, except for code 9318, or when 9915 error by typing ^C while the Raid interrupt was enabled.

^P display Pup host number (in decimal) in maintenance panel.

9302 Invalid Vmem: attempt to boot an image that is not a valid Lisp sysout, or which is inconsistent from having some, but not all, of its dirty pages written. Can happen if you try to boot instead of calling LOGOUT. Usually caught sooner as code 0217.

9303 No place for IOCB page at startup; should never happen.

9304 Map out of bounds: attempt to use a pointer larger than the virtual address space of the machine. Usually means garbage was fetched from somewhere that should have contained a pointer. This usually appears as code 9004 instead.

9305 Invalid address: attempt to use a pointer that does not refer to an existing (allocation) of virtual memory. Usually means garbage was fetched from somewhere that should have contained a pointer. This error can often be converted to a break with the ^B TeleRaid command.

9306 Invalid virtual page. Usually caught sooner, as a 9004.

9307 Unavailable page on real page chain: inconsistent state in page fault handler.

9308 Loop in \SELECTREALPAGE: inconsistent state in page fault handler.

9309 Attempt to allocate already existing page (from call to \NEWPAGE).

9310 \DNEWPAGE failed to allocate new map page

9311 Locked page occupies a file page needed to lock another: bad state in virtual memory system.

9312 Arg to CLOCK0 not an integer box.

9313 Fault on resident page: processor took a page fault for a page that appears to be resident.

9314 PageFault on stack: shouldn't happen, as stack is resident.

9318 Error in uninterruptable system code: an error that ordinarily would enter a break (a type test failure), but in a piece of code that should not be user-interruptable. This is a sign that some datum used by system code has been smashed, but this is not always fatal. Should you not have a wizard handy to diagnose the error with TeleRaid, you can type ^N to enter the TeleRaid server; Lisp will go ahead and attempt to enter a break anyway which (if it succeeds) you might be able to glean more information about the problem.

9400-9899 unassigned

9900-9924 Attempt to call Raid or Alto O.S.

The only one that is likely to ever occur is 9915, call to RAID. Note that if you have the interrupt enabled (by default on ^C), you will get a 9915 error by typing that interrupt character.

9905 NOOPSUBR

9906 \BACKGROUND SUBR

9907 \CHECKBCPLPASSWORD  
9908 DISKPARTITION  
9909 DSPBOUT  
9910 \DSPRATE  
9911 \GATHERSTATS  
9912 \GETPACKETBUFFER  
9913 \LISPFINISH  
9914 \MOREVMEMFILE  
9915 RAID  
9916 \READRAWPBI  
9917 \WRITERAWPBI  
9918 SETSCREENCOLOR  
9919 SHOWDISPLAY  
9920 \PUPLEVEL1STATE  
9921 \WRITESTATS  
9922 \CONTEXTSWITCH  
9923 \COPYSYS0SUBR  
9924 \WRITEMAP