

CROMEMCO

Addendum to the

CDOS Instruction Manual

**CROMEMCO, INC.
280 Bernardo Avenue
Mountain View, CA 94043**

Part No. 023-9020

February 1981

**Copyright © 1981
CROMEMCO, INC.
All Rights Reserved**

Summary of CDOS System Calls

The following is a summary, listing all of the system calls implemented in Series 2 CDOS together with their entry and return parameters. The system calls are listed in order of the number which is loaded into the C register to specify the desired call.

Number -----	Function -----	Entry Parameters -----	Return Parameters -----
0	PROGRAM ABORT	none	none
1	READ CONSOLE (with echo)	none	A = character (parity bit reset)
2	WRITE CONSOLE	E = character	none
3	READ READER	none	A = character
4	WRITE PUNCH	E = character	none
5	WRITE LIST	E = character	none
6	not in use		
7	GET I/O BYTE	none	A = I/O byte
8	SET I/O BYTE	E = I/O byte	none
9	PRINT BUFFERED LINE	DE = buffer address	none
10 (0AH)	INPUT BUFFERED LINE	DE = buffer address	none
11 (0BH)	TEST CONSOLE READY	none	A = -1 (FFH) if ready A = 0 if not ready
12 (0CH)	DESELECT CURRENT DISK	none	none
13 (0DH)	RESET CDOS AND SELECT DRIVE A	none	none
14 (0EH)	SELECT CURRENT DISK	E = disk drive no.	none
15 (0FH)	OPEN DISK FILE	DE = FCB address	A = directory block A = -1 (FFH) if not found
16 (10H)	CLOSE DISK FILE	DE = FCB address	A = directory block A = -1 (FFH) if not found

<u>Number</u>	<u>Function</u>	<u>Entry Parameters</u>	<u>Return Parameters</u>
17 (11H)	SEARCH DIRECTORY FOR FILENAME	DE = FCB address	A = directory block A = -1 (FFH) if not found
18 (12H)	FIND NEXT ENTRY IN DIRECTORY	DE = FCB address	A = directory block A = -1 (FFH) if not found
19 (13H)	DELETE FILE	DE = FCB address	A = number of entries deleted
20 (14H)	READ NEXT RECORD	DE = FCB address	A = 0 if OK A = 1 if end of file A = 2 if tried to read unwritten records
21 (15H)	WRITE NEXT RECORD	DE = FCB address	A = 0 if OK A = 1 if entry error A = 2 if out of disk space A = -1 (FFH) if out of directory space
22 (16H)	CREATE FILE	DE = FCB address	A = directory block A = -1 (FFH) if out of directory space or file already exists
23 (17H)	RENAME FILE	DE = FCB address	A = number of entries renamed
24 (18H)	GET DISK LOG-IN VECTOR	none	A = those disks currently logged-in
25 (19H)	CURRENT DISK	none	A = disk drive number
26 (1AH)	SET DISK BUFFER	DE = buffer address	none
27 (1BH)	DISK CLUSTER ALLOCATION MAP	none	BC = address of bitmap DE = number of clusters A = sectors/cluster
128 (80H)	READ CONSOLE (with no echo)	none	A = character
129 (81H)	GET USER REGISTER POINTER	none	BC = pointer to user register pointers
130 (82H)	SET USER CNTRL-C ABORT	DE = address of ^C handler (0 to reset; -1 to disable)	none

<u>Number</u>	<u>Function</u>	<u>Entry Parameters</u>	<u>Return Parameters</u>
131 (83H)	READ LOGICAL BLOCK	DE = block number B = drive number B bit 7 set if interleaved B bit 6 set indicates block number is in HLDE reg pairs	A = 0 if OK A = 1 if I/O error A = 2 if illegal request A = 3 if illegal block
132 (84H)	WRITE LOGICAL BLOCK	DE = block number B = drive number B top bit = 1 if interleaved	A = 0 if OK A = 1 if I/O error A = 2 if illegal request A = 3 if illegal block
133 (85H)	not in use		
134 (86H)	FORMAT NAME TO FILE CONTROL BLOCK	HL = address of string DE = FCB address	HL = address of terminator DE = FCB address
135 (87H)	UPDATE DIRECTORY ENTRY	DE = FCB address	none
136 (88H)	LINK TO PROGRAM	DE = FCB address	A = -1 (FFH) if error; else execute at 100H
137 (89H)	MULTIPLY INTEGERS	DE = factor 1 HL = factor 2	DE = product
138 (8AH)	DIVIDE INTEGERS	HL = dividend DE = divisor	HL = quotient DE = remainder
139 (8BH)	HOME DRIVE	B = drive number	none
140 (8CH)	EJECT DISKETTE	E = drive number	none
141 (8DH)	GET VERSION OF OPERATING SYSTEM	none	B = version-number C = release-number
142 (8EH)	SET SPECIAL CRT FUNCTION	D = column address/ special function E = row address/0	none
143 (8FH)	SET DATE	B = day D = month E = year-1900	none
144 (90H)	READ DATE	none	A = day B = month C = year-1900

<u>Number</u>	<u>Function</u>	<u>Entry Parameters</u>	<u>Return Parameters</u>
145 (91H)	SET TIME OF DAY	B = seconds D = minutes E = hours (24 hr. time)	none
146 (92H)	READ TIME OF DAY	none	A = seconds B = minutes C = hours (24 hr. time)
147 (93H)	SET PROGRAM RETURN CODE	E = return code for next program	A = previously set return code
148 (94H)	SET FILE ATTRIBUTES	DE = FCB address B = new attributes	none
149 (95H)	READ DISK LABEL	DE = FCB address	none
150 (96H)	TURN MOTORS OFF	none	none
151 (97H)	SET BOTTOM OF CDOS IN RAM	E = high byte of address of bottom of CDOS	none
152 (98H)	READ CURRENT RECORD	DE = FCB address	A = 0 if OK A = 1 if end of file A = 2 if tried to read unwritten records
153 (99H)	WRITE CURRENT RECORD	DE = FCB address	A = 0 if OK A = 1 if entry error A = 2 if out of disk space A = -1 (FFH) if out of directory space
154 (9AH)	CHECK IF ALLOCATED	DE = FCB address	A = 0 if allocated A = -1 if not allocated
155 (9BH)	not in use		
156 (9CH)	LIST DIRECTORY	DE = FCB address	none
157 (9DH)	SET OPTIONS	D = desired option E = mask	A = old options

Options

- bit 0 = CNTRL-P flag
- bit 1 = read after write
- bit 2 = ESCape key use as carriage return
- bit 3 = do not echo carriage return
- bit 6 = do not echo

<u>Number</u>	<u>Function</u>	<u>Entry Parameters</u>	<u>Return Parameters</u>
158 (9EH)	DELETE EXTENTS	DE = FCB address	A = 0 if not found A = 1 if found and erased
159 (9FH)	GET MASTER DRIVE	none	A = master drive B = last drive used in batch (@)



SUMMARY OF CDOS HARD DISK ERROR MESSAGES

If CDOS encounters an error when accessing a hard disk drive a message will be displayed in the following format:

READ-ERROR
WRITE-ERROR
HOME-ERROR
SEEK-ERROR

} DRIVE AA CYLINDER BB HEAD CC SECTOR DD STATUS EE FF

Note that all numbers are displayed in hexadecimal notation.

AA represents a drive designation which may range from A through H.

BB represents the cylinder number which may range from 0 through 161h.

CC represents the head number which may range from 0 through 2.

DD represents the sector number which may range from 0 through 13h.

There are two types of errors: fatal and system. Fatal errors are errors that remain after an I/O operation has been retried a fixed number of times. System errors are errors that occur when an I/O operation initially fails, then succeeds before the fixed number of retries is exceeded.

EE represents a fatal error which may range from 00 through 0Dh. Refer to the following pages.

FF represents a system error which may range from 00 through 06h. Refer to the following pages.

More information concerning errors and fault conditions can be found in the Cromemco Hard Disk Specification manual, part number 023-6002.

FATAL ERRORS

The following error codes are displayed when a fatal disk error occurs.

00 Failed to Seek & Read Header during R/W

An error occurred during an attempt to seek & read header preceding a read/write operation.

01 Failed to Seek - Timeout

The seek did not complete within a specified time. Check the drive electronics.

02 Fault Occurred during Seek

During the seek, a fault error occurred within the drive, as reported by the drive. This may be any of several errors. See the Cromemco Hard Disk Specification manual, part number 023-6002, for more information.

03 Failed to Seek to Correct Track

The sector header as read off the disk is not what the drivers expected, thus the current disk location is incorrect.

04 Failed to Read CRC of Header

The CRC for the header as read from the disk is incorrect; it is different than what was expected. Most likely the current disk location is incorrect or the media surface is damaged.

05 Failed to Rezero - Timeout

A rezero command did not complete within a specified time. Check the drive electronics.

06 Fault Occurred after Rezeroing

A fault error occurred within the drive after a rezero command was executed. This may be any of several errors. See the Cromemco Hard Disk Specification manual, part number 023-6002, for more information.

07 Drive not Ready

The ready signal from the drive is not active. Make sure the drive is connected properly.

08 Failed to Write - Fault Error

During the write, a fault error occurred within the drive, as reported by the drive. This may be any of several errors. See the Cromemco Hard Disk Specification manual, part number 023-6002, for more information.

09 Failed to Verify after Write

After data is written to the disk, it is read back and verified. This error occurs if the data cannot be properly verified.

0A Failed to Read - Fault Error

During the read, a fault error occurred within the drive, as reported by the drive. This may be any of several errors. See the Cromemco Hard Disk Specification manual, part number 023-6002, for more information.

0B Failed to Read - CRC Error

The CRC just read from the disk is incorrect; it is different from the expected CRC. This error usually means that the data just read is incorrect.

0C Failed to Read - Cannot Locate Sector

The sector being looked for cannot be found on the current track. This error can occur if the media surface is damaged or if the controller electronics are not functioning properly.

0D Surface is Write Protected

The surface selected for the current write command is write protected and can not be written to.

SYSTEM ERRORS

The following error codes are displayed when a system disk error occurs.

00 No Acknowledge Received from Drive

The drive did not acknowledge a command sent to it. Make sure the drive is connected properly.

01 Drive Remains BUSY - Acknowledge Stuck Low

The acknowledge signal from the drive did not go high again after the command strobe went inactive.

02 Timeout Occurred during Rezeroing

A rezero command did not complete within a specified time. Check the drive electronics.

03 Fault Condition Reported by Drive

A fault condition occurred within the drive, as reported by the drive. This may be any of several errors. See the Cromemco Hard Disk Drive Specification manual, part number 023-6002, for more information.

04 Failed to Read - CRC Error

The CRC just read from the disk is incorrect; it is different from the expected CRC. This error usually means that the data just read is incorrect.

05 Header Off the Disk Does Not Compare with Expected Header

The sector header as read off the disk is not what the

drivers expected, thus the current disk location is incorrect.

06 Failed to Verify after Write Operation

After data is written to the disk, it is read back and verified. This error occurs if the data cannot be properly verified.