Bit Bucket X'2F'

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Getting Loopy

(Ed Jaffe)

XL C/C++ Compiler "Fun"

- After upgrading to z/OS 2.1, we recompiled some of our products that are written in C/C++
- Numerous S0C4s were the result
- Looking very carefully at generated code, we found a wrong branch instruction used as a loop terminator. GAAA!
- Applied all compiler maintenance up to and including that made available on July 17, 2014. No change.

SYSMOD	STATUS	TYPE	FMID	REQUISITE SYSMODS	
UI16362	SUPD	PTF		SUPBY	UI18560
UI16444	SUPD	PTF		SUPBY	UI18562
UI18560	APPLIED	PTF	HLB7790	REQ	UI18562
UI18562	APPLIED	PTF	HLB7790	REQ	UI18560
UI18564	APPLIED	PTF	HLB7790		

Program source snippet

```
for (k = i = 0; i < ExtentCount; i++)
    {
    Buffer       = (BYTE *) BufferPtr [i];
    Length       = Extent[i].Length;
    StartBlock  = Extent[i].StartBlock;
    LastBlock   = StartBlock + (Length - 1);

    if (LastBlock > ParmList.HighBlock)
        ParmList.HighBlock  = LastBlock;

    for (j = 0; j < Length; j++, k++)
        {
        BlockList  [k]  = StartBlock + j;
        LengthList [k]  = XferBlkSize;
        BufferList [k]  = Buffer;
        Buffer  += XferBlkSize;
        }
    }
return 0;
```

Generated assembler "object" code

```
0001B2   1E89              000073 |      1           ALR    r8,r9
0001B4   50AE   2004       000075 |      1           ST     r10,(*)uchar*(r14,r2,4)
0001B8   508E   F008       000073 |      1           ST     r8,(*)int(r14,r15,8)
0001BC   1890              000073 |      1           LR     r9,r0
0001BE   504E   1008       000074 |      1           ST     r4,(*)int(r14,r1,8)
0001C2   58A0   D0C0       000075 |      1           L      r10,#SPILL7(,r13,192)
0001C6   1E9B              000073 |      1           ALR    r9,r11
0001C8   50AE   2008       000075 |      1           ST     r10,(*)uchar*(r14,r2,8)
0001CC   509E   F00C       000073 |      1           ST     r9,(*)int(r14,r15,12)
0001D0   A76A   0004       000071 |                  AHI    r6,H'4'
0001D4   504E   100C       000074 |      1           ST     r4,(*)int(r14,r1,12)
0001D8   58B0   D0C4       000075 |      1           L      r11,#SPILL8(,r13,196)
0001DC   50BE   200C       000075 |      1           ST     r11,(*)uchar*(r14,r2,12)
0001E0   41E0   E010       000000 |                  LA     r14,#AMNESIA(,r14,16)
0001E4   4670   3124       000071 |                  BCT    r7,@1L8
0001E8                     000071 |            @1L9  DS     0H
0001E8   5850   D0B8       000000 |                  L      r5,#SPILL5(,r13,184)
0001EC   5800   D0A4       000061 |                  L      r0,#SPILL0(,r13,164)
0001F0   5860   D0B4       000000 |                  L      r6,#SPILL4(,r13,180)
0001F4   A70A   FFFF       000061 |                  AHI    r0,H'-1'
0001F8   4150   5004       000000 |                  LA     r5,#AMNESIA(,r5,4)
0001FC   5000   D0A4       000061 |                  ST     r0,#SPILL0(,r13,164)
000200   5050   D0B8       000000 |                  ST     r5,#SPILL5(,r13,184)
000204   4160   6008       000000 |                  LA     r6,#AMNESIA(,r6,8)
000208   5060   D0B4       000000 |                  ST     r6,#SPILL4(,r13,180)
00020C   47D0   30C6       000061 |                  BNH    @1L5
000210                     000061 |            @1L6  DS     0H
000210   41F0   0000       000079 |      1           LA     r15,0
000214                     000080 |      1     @1L10  DS     0H
```

GAAA!

1 reply Latest Post - Mar 31 by Visda

DaveyC
51 Posts

Bug z/OS 2.1 compiler optimizing using ARCH(3)
Mar 27 | Tags: *none*

I ran into a bug with the z/Os 2.1 compiler optimizing C code with the ARCH(3) compiler option. OK, ARCH(3) is clearly not a good idea but the option was hard coded in a build script.

Using the 1.13 compiler a for loop decrements a counter until it reaches zero using an SL instruction and a BNH. This is correct.

```
0049A6   5FF0   3692        000757 |            SL        r15,=F'1'
0049AA   5010   D0E4        000000 |            ST        r1,#SPILL5(,r13,2
0049AE   5000   D0E0        000757 |            ST        r0,#SPILL4(,r13,2
0049B2   50F0   D0E8        000757 |            ST        r15,#SPILL6(,r13,
0049B6   47D0   30E8        000757 |            BNH       @27L452
```

Using the 2.1 compiler, the counter is decremented using a AHI instruction and tested using BNH. This is wrong.

```
004B76   A75A   FFFF        000757 |            AHI       r5,H'-1'
004B7A   5050   D0EC        000757 |            ST        r5,#SPILL7(,r13,2
004B7E   41F0   F03C        000000 |            LA        r15,#AMNESIA(,r15
004B82   50F0   D0E8        000000 |            ST        r15,#SPILL6(,r13,
004B86   47D0   30EC        000757 |            BNH       @27L452
```

Log in to reply.

Visda
21 Posts

Re: Bug z/OS 2.1 compiler optimizing using ARCH(3)
Mar 31 in response to DaveyC

The fix for this bug is in the April PTF of 2.1 if it is not already in the December PTF.

Thanks,

Visda

Log in to reply.

What is wrong with this branch?

- **SUBTRACT LOGICAL cond-code result:**
    - **0 --**
    - **1 Result not zero; borrow**
    - **2 Result zero; no borrow**
    - **3 Result not zero; no borrow**
- **ADD HALFWORD IMMEDIATE cond-code result:**
    - **0 Result zero; no overflow**
    - **1 Result less than zero; no overflow**
    - **2 Result greater than zero; no overflow**
    - **3 Overflow**
- **Branch Mask for BNH is 1101 which works after SL**
- **Branch Mask should be 0111 or BNZ after AHI**
- **A good "heads up" for HLASM programmers too. Always remember and never forget: <u>Logical and arithmetic instructions generate wildly different condition codes.</u>**

Our Workaround

- **The responder (from IBM's compiler team) indicated the compiler bug was fixed, but even with all service applied we see the issue.**
  - **Perhaps fixed for ARCH(3) only?**
- **Turned out this product is compiled with ARCH(4) which allows execution on ESA/390 architecture.**
- **We chased away the problem by changing the compiler options to use ARCH(5) for z/Architecture.**
- **This problem is not yet fixed, so please be aware!**
- **You can avoid it by either:**
  - **Not recompiling programs after upgrading to z/OS 2.1 or**
  - **Writing programs without loops or**
  - **Compiling with ARCH(5) or higher**
- **We will continue to work with IBM to get this bug fixed.**

Upgrades can be Wonderful. But, Sometimes a Downgrade is Best!

(Ed Jaffe)

A 27 Year-old SHARE Requirement

- SSSHARE011386: EXC to SHR ENQ Downgrade
- Submitted by David White, Mutual Life of Canada, against MVS/XA on July 1, 1986.
- As with most requirements, probably recognized as a need by customers long before that.
- "IBM should enhance the MVS ENQ/DEQ mechanism so as to allow a task which is running with exclusive control of an ENQ resource to downgrade the task's control of that resource to shared."
- Serious work on revitalizing SHARE MVS requirements began in 2009 with the formation of the Requirements Committee.
- This requirement finally addressed (after 27 years!) with z/OS 2.1: GA September 2013.

What was the Problem?

- **Many tasks can [ISG]ENQ for SHR, but only one EXC**
  - **SHR typically held by "readers" of a resource**
  - **EXC typically held by "writer" of a resource**
- **Suppose your task held SHR for "reading" and then realized it needed to "write" (update) the contents of the resource?**
- **There is an [ISG]ENQ function to request upgrade from SHR to EXC. (Works only for single holder of SHR. Therefore, typically DEQ and re-ENQ for EXC.)**
- **There was no function to downgrade from EXC to SHR. Once EXC held, no others could get SHR until DEQ.**
- **DEQ and re-ENQ might be unacceptable because the resource could be changed or deleted by another task between the DEQ and the re-ENQ SHR.**
- **If that could not be tolerated, then your only option was to continue to hold EXC, blocking all other tasks.**

What was the Solution?

- **New CONTROL= keyword added to ISGENQ for REQUEST=CHANGE.**
  - **CONTROL=EXCLUSIVE is default, of course**
  - **CONTROL=SHARED requests the downgrade**
- **When CONTROL=SHARED specified, system control blocks are updated to effect a downgrade of the ENQ from EXC to SHR request.**
- **Queued SHR requests for the resource from other tasks are immediately honored.(Good luck getting back to EXC. See previous slide. ☺)**
- **No update to ENQ RET=CHNG (upgrade request).**
  - **ENQ/DEQ support stabilized when ISGENQ/ISGDEQ introduced in z/OS 1.6**

Where is it Used Right Now?

- The most obvious need was in MVS Common Allocation. Indeed, this was the use case cited by Mr. White in his original requirement.
- Once obtained, a SYSDSN ENQ is not released until after the last step in which the data set is used and, prior to z/OS 2.1, it could not be downgraded.
  - Problem cited was that of a 30-second DISP=OLD/MOD step followed by hours-long DISP=SHR step(s).
- In z/OS 2.1, when no more job steps need exclusive control of a data set and the DSENQSHR option allows, the data set's SYSDSN ENQ is downgraded under the initiator task from EXC to SHR, thus allowing other DISP=SHR users to proceed.
- Beyond common allocation, this useful new serialization feature will eventually permeate the whole of the z/OS software stack from IBM to ISVs and everything in-between.

Have Faith in the Requirements Process

- The Requirements Committee combed through hundreds of requirements, retired many, and asked YOU – the SHARE membership – to rank and reprioritize them.

- A "Top 39" requirements list was turned over to IBM in August 2011 at SHARE in Anaheim. Roughly 1/3 of them – some quite old- were addressed in z/OS 2.1, making it one of the most well-received releases in recent memory.

- A new "Top 50" requirements list was turned over to IBM in August 2013 at SHARE in Boston. Good progress on these requirements is being made.

- Our goal is to shave at least a couple/few months off that 27-year implementation time, so don't be shy about opening up new requirements…

- OK. That was a joke. Our goals are far, far loftier! ☺

Recent SCE Pain Points – Hurts so Good

(Skip Robinson)

JES2 Control Block Changes

- **Several fields moved from $DTE/$DCN to $CIWORK**
- **This in support of 'batch modernization'**
- **In Exit 6, we used these fields**
  - **DCNVMSG 'ACB FOR SYSTEM MSGS DATA SET'**
  - **DCNVSCHE 'Scheduling environment for job'**
  - **DCNVCAT 'Address of CAT for job'**
- **These and other fields are now in $CIWORK**
- **Fields now in $CIWORK**
  - **Pointed directly to by exit parm list word 6 (+20)**
- **CIWBMSG 'ACB for system msgs data set'**
- **CIWJSCHE 'Scheduling environment'**
- **CIWCATA 'Address of CAT for job'**
- **Control block changes hit exits up front**
- **Regardless of JES2 run time options**

Product Upgrades in ServerPac

- ServerPac typically comes with latest levels
- We were a bit down-level for Netview SA
- On first IPL of 'real' SCE system, SA choked
- Required a 'migration action' from 3.3 to 3.4
- The SA SME had not budgeted time for this
- Still trying to get it to work
- Without automation, testing is hamstrung

~~Snakes~~ Limits, Why'd there have to be ~~snakes~~ limits?

(Anonymous)

Background

- **MVS is a highly reliable system**
- **Evolved over many years**
- **Its design has scaled incredibly over decades**

- **Mainframe storage use has grown at many shops just like it has grown all across IT**
- **Many shops have used DFHSM for decades to manage this storage**
- **What hasn't grown?**
- **The MVS address space introduced in MVS/XA was 2 gigabytes in size**
- **It's still 2 gigabytes today, in 31 bit mode**
- **Of course there's now 64-bit virtual, data spaces, etc, but you have to *change* to use them**

The Problem

- A few months back, the Storage Team was checking the environment
- TSO user issued a normal DFHSM command to see how things are going
- HSEND QUERY REQUEST
- Hit ENTER, <u>system crashed</u> (hate when that happens!)

- Standalone dump sent in, IBM analysis:
- "Your issue is OA07825"
- OUTPUT FROM QUERY REQUEST ISSUED FROM TSO CAUSED CSA SHORTAGE
- CANNOT LIMIT HSM CSA USAGE FOR OUTPUT
- Status: CLOSED PRS (circa 2004)
  - PRS = Permanent Restriction   REALLY???

Further Observations

- Since 2004, DASD storage usage has grown
- Tens of thousands of data sets became ...
- Hundreds of thousands of datasets, which later became ...
- Millions of data sets - over this period
- When large volumes are acted upon by HSM, LOTS of work elements (MWEs) occur
- If you query HSM activity, a bit of CSA is used to tell your TSO userid about EACH of them
  - CSA / ECSA to communicate from a server address space to a TSO user   REALLY????

What's New in this Space?

- As of May 2014, APAR OA44478 introduces an optional limit
- Interface: HSM PATCH command
- Default: Current behavior (no limit on CSA usage)
- Suggestion: Read this APAR. Set a limit.
- There's only so much CSA in your system!

Go Away Boy, Ya Botha Me

(Skip Robinson)

ISRLOGO

- In vanilla ISPF, primary panel displays a 'logo'
- Really an IBM copyright notice
- We have never displayed it
- But in new ISPF, we could not suppress it

```
+------------------------------------------+
| Licensed Materials - Property of IBM     |
| 5650-ZOS      Copyright IBM Corp. 1980, 2013. |
| US Government Users Restricted Rights -  |
| Use, duplication or disclosure restricted |
| by GSA ADP Schedule Contract with IBM Corp. |
+------------------------------------------+
```

ISRLOGO

- We modify primary panel ISR@PRIM a lot
- Same mods appeared to carry forward
- No change we could see would explain
- After discussion on IBM main, we commented out two lines
- Logo no longer displays

```
/* .MSG = ISRLO999    Set logo information    @L5A*/
/* .RESP = ENTER      Simulate enter          @L5A*/
```

- Another option is to add the NOLOGO option to your ISPF invocation
  - "ISPF NOLOGO"
  - "ISPSTART PANEL(ISR@PRIM) NOLOGO NEWAPPL(ISR)"

I Come Not to Praise HFS, But to Bury It

(Tom Conley)

Bit Bucket '2D' in Boston

- I reported an issue with zFS V4 running on z/OS V1R12
- zFS V4 directories with large numbers of files (>50,000) performed poorly due to a linear list structure
- Application extracted 100,000-500,000 reports to ship offsite in batches
- Deleting the files for the next batch took hours in zFS V4
- HFS was the temporary solution prior to z/OS V2R1
- Earlier this week, I heard rumblings that people at z/OS V2R1 were still holding off on going to zFS V5
- Since I presented this in Boston, I wanted to follow up to see if zFS V5 delivered on the performance promises
- So I ran some tests on the SHARE LPAR at z/OS V2R1

Check, 123, Check

- With Marna Walle's help (thank you Marna!), I created an HFS directory with 100,000 files and a zFS V5 directory with 100,000 files
- I listed the directories in ISHELL
- I was pleasantly surprised to see that ISHELL actually displayed the zFS directory slightly more quickly than the HFS directory
- I then deleted the datasets with ISHELL
- Delete performance took a little longer for zFS V5 than HFS, but it was on the order of seconds, instead of the hours and hours for zFS V4
- YMMV, but I'm a believer in zFS V5, and I'll be converting my HFS filesystems as soon as I have z/OS V2R1

z/OS V2R1 to the Rescue!

- IBM has addressed zFS directory performance issues in z/OS V2R1 with creation of zFS v5
- zFS v5 uses tree structure for directory, with improved performance that scales linearly as directory grows
- Even small directories will benefit from zFS v5
- zFS v4 directories can be converted to v5 with IBM tooling
- For full details on performance improvements and migration paths from zFS v4 to v5, reference Marna Walle's presentation zFS V5 Migration and Performance
- If you need large directories prior to z/OS V2R1, use HFS
- Postpone any HFS to zFS conversions until z/OS V2R1
- FIRE ITEM from Marna Walle's zFS V5 session: IBM recommends not using V5 filesystems until you are fully on z/OS V2R1 with no plans to go back to prior releases
- But once you're there, convert your HFS's to zFS V5

Searching for Meaning
(Tom Conley)

SRCHFOR is Your Friend (Sometimes)

- SRCHFOR will search for strings in ISPF
- Can be invoked from a member list (MEMLIST) to search all members of a PDS
- Can be invoked from DSLIST (ISPF 3.4) to search all the datasets on the dataset list
- New with z/OS V2R1, SRCHFOR can be invoked from UDLIST (ISPF 3.17) to search the files in a USS directory
- Unfortunately, SRCHFOR is implemented in three different ways, and not all options are available to each of the three lists
- There are also useful features which are somewhat hidden and are unclear due to their names
- Entering the SRCHFOR command in any of these displays with no options will bring up the SRCHFOR options popup panel

MEMLIST SRCHFOR

MEMLIST SRCHFOR

- The "Set EDIT/BROWSE FIND string" option will let you edit/browse a member from the hit list, enter FIND, and go to the string you searched for
- The "Filter List" option will only show hits on the resulting member list screen
- Edit the first member on the list
- Enter the FIND command (PF5)
- Note that you don't have to enter "FIND string-you-just-found-with-SRCHFOR"

MEMLIST SRCHFOR

MEMLIST SRCHFOR


```
   File   Edit   Edit_Settings   Menu   Utilities   Compilers   Test   Help

EDIT       TCONLEY.PDS.INSTALL($$$DOC) - 01.99        CHARS 'REVIEW' found
Command ===>                                                 Scroll ===> CSR
000109    UTILXMIT -- BLKDISK, COBANAL, COMPARE*, DELINKI, DISASM, DSAT, DVOL,
000110                HEL, MXI, OFFLOAD, PDSLOAD, PDSMATCH, RELEASE, REVIEW,
000111                and VTOC commands in TSO XMIT format (load modules)
000112    Z035XMIT -- PDS, PDS38, PDS86, PDS86I, PDS8638 commands
000113                in TSO XMIT format (load modules)
000114    ACFC     -- ACFC rexx edit macro (compile ACF2 access/resource rule)
000115    CBTFTP   -- CBTFTP rexx example (FTP pop-up dialog to XMIT/FTP CBT)
000116    IDCAMS   -- IDCAMS rexx example (edit macro to run IDCAMS commands)
000117    ABEHELP  -- ABE TSO help member
000118    HELPLIST -- HELPLIST assembler source code
000119    PDSBOOK  -- PDSBOOK rexx exec to create a PDS quick reference booklet
000120                from the PDSHELP member
000121    PDSMSGS  -- PDSMSGS rexx exec to create a list of PDS messages
000122                from the PDSHELP member
000123    PDSLAB   -- SHARE 2214 - PDS Lab instructions for running at home
000124    PDSLIBDF -- PDS LIBDEF clist
000125    PDSQWGEN -- Edit macro to generate Quickref K (index) tags in PDSHELP
000126    PDSQWLOD -- Loads PDSHELPQ to a MVS/QuickRef User database
000127    PDSSETUP -- SHARE 2214 - PDS Lab setup clist
000128    PDSTI    -- PDSTI rexx exec to run CA-1 tape inquiry from LISTC/LISTF
000129    PDSTRAP  -- PDSTRAP clist for 80-byte wide View Log
000130    PDSTRAPT -- PDSTRAPT test clist for TRAP function
000131    PDSTRAPW -- PDSTRAP clist for > 80-byte wide View Log (&LOGWIDE=YES)
000132    PDSTRIM  -- PDSTRIM rexx example (trim VB LRECL down to largest LRECL)
000133    RRGEN    -- RRGEN programming facility for System/360
000134    SAMPM1   -- Message member for dialog clist example
000135    SAMPPREP -- ISPPREP dialog clist example
000136    SAMPPRE1 -- ISPPREP dialog panel 1
```

DSLIST (ISPF 3.4) SRCHFOR

- In the DSLIST SRCHFOR, you'll see that the Set EDIT FIND string and Set BROWSE FIND string options are not listed

- The option "Exclude not found" is similar to the "Filter List" option in the MEMLIST SRCHFOR, but not quite

- As you'll see on the next slide, a number of datasets are excluded, with the excluded line counts shown, where MEMLIST just showed members where the string was found

DSLIST (ISPF 3.4) SRCHFOR

DSLIST (ISPF 3.4) SRCHFOR

UDLIST (ISPF 3.17) SRCHFOR

- For the UDLIST SRCHFOR, you'll see that the Set EDIT FIND string and Set BROWSE FIND string options exist!
- There is no option to either "Exclude not found" or "Filter List"
- To see all the hits at the top of UDLIST, enter a "sort message d" command

UDLIST (ISPF 3.17) SRCHFOR

UDLIST (ISPF 3.17) SRCHFOR

UDLIST (ISPF 3.17) SRCHFOR

Has Anyone Seen Mike Onsole?

(Mary Anne Matyaz)

Integrated 3270 Console use

- z/OS 2.1 now supports a NIP and MVS console using the HMC 'Integrated 3270 Console' function.

- z/VM has done this for quite some time

- It makes OSA-ICC's, well, unnecessary

- It doesn't have to be in the IODF for NIP

- If nothing else, it's a nice backup/emergency use function

Select From the HMC

CONSOLxx

```
/*------------------------------------------------------------*/
/* NOTE: HMC CONSOLE                                          */
/*------------------------------------------------------------*/
CONSOLE DEVNUM(HMCS) ROUTCODE(ALL)
        NAME(HMC&SYSCLONE.)
        AUTH(MASTER)
        USE(FC)
        AREA(NONE)
        MSCOPE(*)
        CMDSYS(*)
        DEL(RD)
        LEVEL(ALL)
        CON(N)
        RNUM(20)
        SEG(20)
        RTME(1/4)
        MFORM(T,S)
        INTIDS(Y)
        UNKNIDS(Y)
```

Top Secret Security Definitions

```
TSS CREATE(HMC52) TYPE(USER) DEPT(M5-DEPT) +
     Password(abcdef#1,0) name('HMC console id')
TSS ADD(HMC52) PROFILE(M5-TND,M5-CON)
TSS ADD(M5-DEPT) SYSCONS(HMC)
TSS PER(HMC52) SYSCONS(HMC)
TSS PER(M5-MVS) SYSCONS(HMC)
```

Display

```
D C,A
CNZ4100I 09.53.44 CONSOLE DISPLAY 504
CONSOLES MATCHING COMMAND: D C,A
MSG:CURR=0     LIM=3000 RPLY:CURR=0     LIM=50     SYS=OS07R1
PFK=Z0
HARDCOPY  LOG=(SYSLOG,OPERLOG)  CMDLEVEL=CMDS
     ROUT=(ALL)
 …

HMC71      TYPE=HMCS      STATUS=ACT-OS07R1
           DEFINED=(*ALL)
           MATCHED=(*ALL)
   ATTRIBUTES ON OS07R1
     AUTH=(MASTER)    CMDSYS=N/A          NBUF=0
SUPSBY=Y
     DEV=NONE          LOGON=AUTO          USERID=HMC71
     MFORM=(T,S)       AREA=(Z)            PFKTAB=CON1920
     USE=FC  DEL=RD    RTME=1/4  RNUM=20   SEG=20     CON=N
     LEVEL=(ALL)
     MONITOR=(NONE)                        INTIDS=Y
UNKNIDS=Y
     ROUT=(ALL)
```

File   Keys   Font   Help

```
-  10.12.41 OS07R1   d iplinfo
   10.12.41 OS07R1   IEE254I   10.12.41 IPLINFO DISPLAY 682        C
    SYSTEM IPLED AT 09.26.08 ON 07/09/2014
    RELEASE z/OS 02.01.00     LICENSE = z/OS
    USED LOADZ1 IN SYS0.IPLPARM ON 02300
    ARCHLVL = 2    MTLSHARE = N
    IEASYM LIST = (Z1,L)
    IEASYS LIST = (Z1,70) (OP)
    IODF DEVICE: ORIGINAL(02300) CURRENT(02300)
    IPL DEVICE: ORIGINAL(0B49C) CURRENT(0B49C) VOLUME(M517R5)
```

Usage Notes

- If you bring up the icon on a non z/os 2.1 system, you simply get a black window.

- NIP Search order *starts* with this console, so if it's up, NIP will go there, regardless of whether you have it defined in CONSOLxx.

- After NIP, must have definition in CONSOLxx

- If you X out of HMC, and get the Logoff or disconnect window, the 3270 window is ALREADY gone. Even if you say cancel.

- Try the SET CON=xx if you haven't yet. Can use the new SETCON DELETE also.

More Usage Notes

- **Screen size is 43 X 80. Period.**

- **Only one per z/OS LPAR**

- **Lots of doc about 'Attention', but it came right up for me after IPL**

Reference

- https://www.ibm.com/developerworks/community/blogs/IBMRedbooksSystemz/entry/z_os_v2r1_technical_updates_hmc_integrated_3270_console_hmcs?lang=en   or google   hmcs console blog
- z/OS MVS Planning: Operations

http://publibz.boulder.ibm.com/epubs/pdf/iea3g300.pdf

- z/OS Init and Tuning Reference for CONSOLxx

- Redbook
  z/OS Version 2 Release 1 Technical Updates, SG24-8140

It's only "Mostly Dead"

(Sam Knutson)

OS/360

- OS/360, officially known as IBM System/360 Operating System, is a discontinued batch processing operating system developed by IBM for their then-new System/360 mainframe computer, announced in 1964; it was heavily influenced by the earlier IBSYS/IBJOB and Input/Output Control System (IOCS) packages. It was among the earliest operating systems to make direct access storage devices a prerequisite for their operation.

- http://en.wikipedia.org/wiki/OS/360_and_successors

- OS/360 n. A small free operating system that took IBM to total dominance of the global computing market. See Linux From http://www.isham-research.co.uk/dd.html

- Download from http://www.ibiblio.org/jmaynard/

Rick Fochtman's OS/360 CD #1

- As described by Rick this CD-ROM contains as complete a set of OS/360 source materials as I was able to find. It also contains a "genned" minimal system and a complete set of distribution libraries. The IBM Corporation, through its agents, has assured me that this material may be distributed freely, since it was not protected by copyright at the time of distribution. As a courtesy, you should make any appropriate attributions when re-using these materials. Rick Fochtman "Gatherer of Archaica". This is the version distributed at the MVT 30th Birthday Party during SHARE in Dallas. Format is CD-R
- http://cbttape.org/cdrom.htm

Jay Maynard's OS/360 MVT Turnkey CD #1

- **A turnkey OS/360 MVT system configured to use with the Hercules emulator. Includes a non functional copy of HASP III.   This is the version distributed at the MVT 30th Birthday Party during SHARE in Dallas. Format is CD-R**

- http://cbttape.org/cdrom.htm

Rick Fochtman

- Richard "Rick" A. Fochtman Jr., 61, died Friday, June 29, 2012, at his home in Woodridge, Ill.

- Born Aug. 2, 1950, in Charlevoix, Mich., to the late Richard and Bonnie (Sutton) Fochtman, Rick graduated from Charlevoix High School in 1969. He attended Michigan Technological University, majoring in computer science.

- Rick was employed as a systems programmer by Trailer Train Company in Chicago until 1981 and then joined Clearing Corporation, servicing the Chicago Board of Trade as senior systems programmer specialist until his retirement in 2006.

- Key role in preservation of OS/360

- CBT Tape file # 147 ARCHIVER All your non-VSAM datasets to 1 VSAM file, also #447, 684, more!

Hercules - What is it?

- Hercules is a System/370, ESA/390 and z/Architecture emulator which can IPL and execute most of the instructions defined for these architectures. It can also emulate CKD and FBA DASD, printer, card reader, tape, channel-to-channel adapter, and local non-SNA 3270 devices.

- Currently runs under Linux, Windows, Mac OS X 10.2 or later, BSD, and experimental ports for other platforms are underway

- Capable of running nearly all software written for S/370, ESA/390 and z/Architecture

- Hercules Home Page http://www.hercules-390.org

Hercules – Find out more?

- **Active User Community on Yahoo Groups**
- **http://groups.yahoo.com/group/hercules-390**

- **Post message: hercules-390@yahoogroups.com**
- **Subscribe: hercules-390-subscribe@yahoogroups.com**
- **Unsubscribe: hercules-390-unsubscribe@yahoogroups.com**
- **List owner: hercules-390-owner@yahoogroups.com**

- **Groups now include hercules-390, H390-MVS, turnkey-mvs, H390-VM, more!**

Hercules – Windows GUI
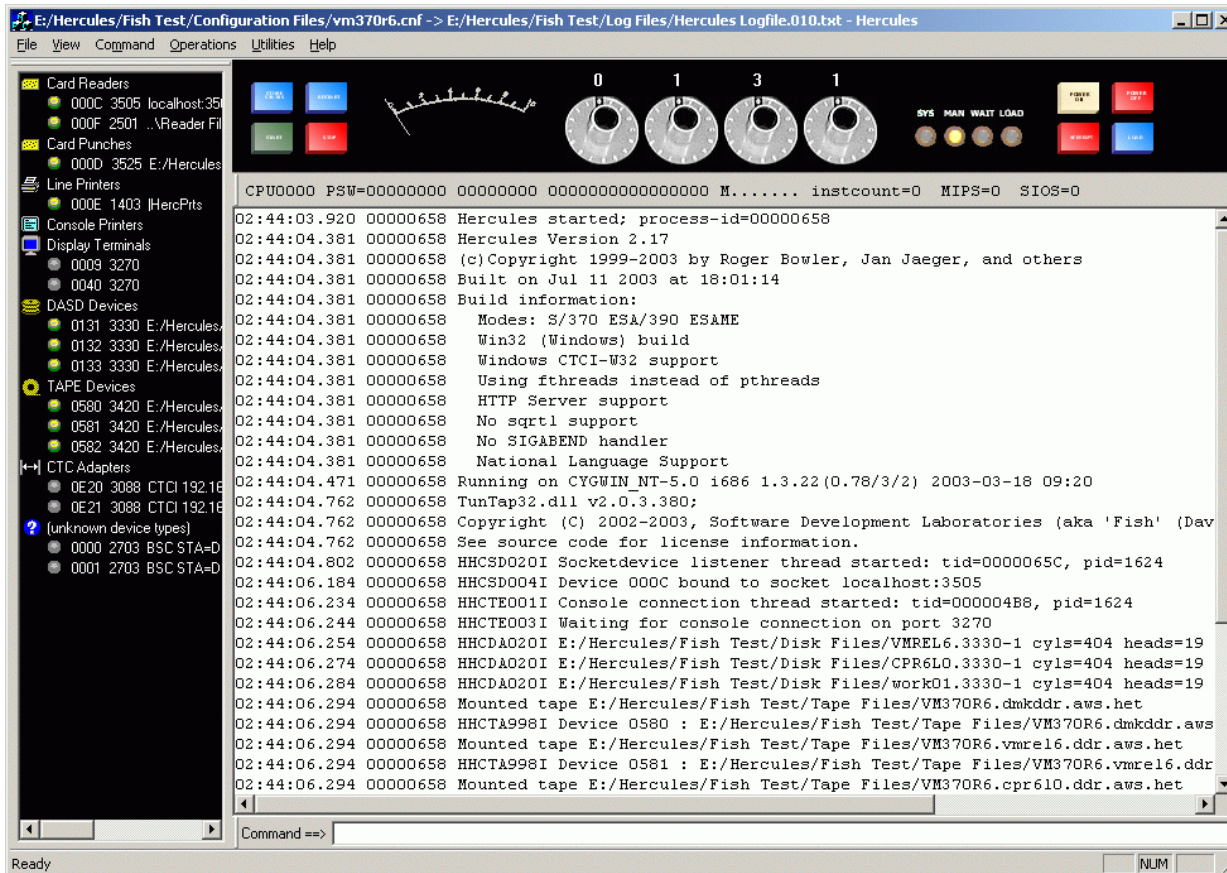
- **Low cost, high quality tools from "Fish" David B. Trout**
- http://www.softdevlabs.com &
  http://hercgui.pedroramos-si.com/

Hercules – Mac & Linux GUI

- http://www.jacobdekel.com/hercstudio/
- **Hercules Studio - a Hercules gui for Mac OS X and Linux**

MVT IPLed on Mac

Acknowledgements Both Knowing and Unknowing

- **Brian Childs, IBM**
- **Brian Peterson, UHG**
- **Marna Walle, IBM**
- **Kim Bailey, IBM**
- **Jay Maynard, http://www.conmicro.com/**
- **Rick Fochtman, Chicago Board of Trade**
- **"Fish" David B. Trout, SoftDevLabs**

See You in Seattle...