



| z/TPF V1.1

2013 TPF Users Group

Title: CP Updates

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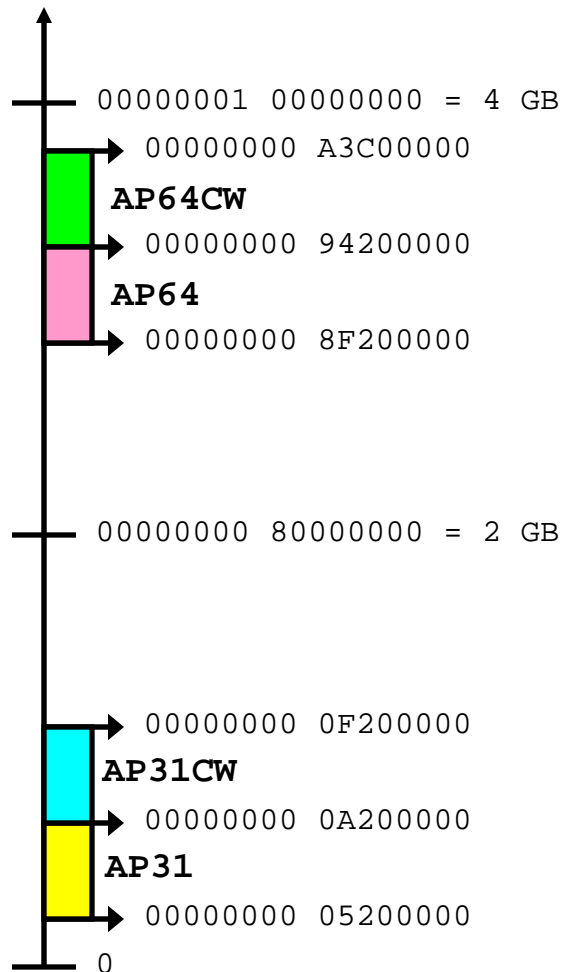
AIM Enterprise Platform Software
IBM z/Transaction Processing Facility Enterprise Edition 1.1

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PJ37995 – Locate 64-bit CRPA between 2 – 4GB

- **Prior to PJ37995 no storage was mapped between 2 GB and 4 GB.**
- **Automatically locate between 2 GB and 4 GB as long as both 64-bit CRPAs can fit**
 - AP64 – 64 bit standard CRPA
 - AP64CW – 64 bit copy-on-write CRPA
- **Otherwise, both 64-bit CRPAs will be located above 4 GB.**
- **Performance gain**
 - High use of C / C++ programs will see gain.
 - Due to improved branch prediction.

PJ37995 – Locate 64-bit CRPA between 2 – 4GB



When 64-bit CRPA is between 2 – 4 GB the starting address for AP64 is the end of AP31CW plus 2 GB.

➤ Allows diagnostic tools to determine the program based on the program address

➤ **GETCIC / tpfGetCodeInfo()**

Example:

AP64CW = 250 meg

AP64 = 80 meg

AP31CW = 80 meg

AP31 = 80 meg

PJ41022 – Dump Buffer Area (DBA) enhancements

- **Not available at this time**
- **New option to allow writing directly to tape**
 - Only for Restart dumps
 - HMC: PSW Restart
 - VM: #CP SYSTEM RESTART
 - SIP option on CONFIG
 - RESTARTSE=DBA .. Default: write to dump buffer area
 - RESTARTSE=TAPE .. Write directly to tape
- **New option on ZPSMS to not require tapes to be dismounted.**
 - Purpose is to allow dumps taken during the deactivate process to be written to the dump tape.
 - ZPSMS PR **NODISMOUNT** DEAC *id*
 - Only valid when ZPSMS is entered on the processor that is being deactivated
 - ZPSMS will wait for the DBA to clear before loading disabled wait PSW.
 - Time out is calculated based on the amount of data in the DBA.

PJ40633 – Dumps to include a marker in ECB trace to indicate end of a trace buffer

- **Indicates that a gap may exist in ECB trace.**
 - After the marker, the next item in ECB trace is from a different trace buffer.
- **ECB trace only; not in collated trace**
- **A trace group uses two trace buffers.**
 - C function trace buffer
 - Macro trace buffer
- **Separate marker for end of C function trace and macro trace**

PJ40633 – Dumps to include a marker in ECB trace to indicate end of a trace buffer

- The following is an example of function trace marker:

```

IBM_DEFT          CISO      OBJECT-vfprintf
                  01 +0007D26 return(int 00000008) errno=00000
                      from int fprintf(void *,struct *)

IBM_DEFT          CISO      OBJECT-genops
                  01 +0001128 return(size_t 0000000000000000) errno=00000
                      from size_t _IO_default_xsputn(void *,void *,size_t)

-----LAST FUNCTION TRACE FOR  IBM_DEFT

```

- The following is an example of macro trace marker:

```

IBM_DEFT          CFVS
                  64PU1 01 +???      CFVS  CINFC
R0 00000000 000014E0 00000000 12C3F108 R1 R2 00000000 00000258 00000000 9ECAAF8 R3
R4 00000000 0000018E 00000000 9E8FA336 R5 R6 00000000 10300390 00000000 9E8FA058 R7
R8 00000000 12C3F0F8 00000000 05309000 R14 R15 00000000 12C3F350

                  64PU0 01 +???      CFVS  KEYRC
R0 00000000 00001330 00000000 9EC5DCEE R1 R2 00000000 05309000 00000000 00000000 R3
R4 00000000 0014A146 00000000 00000C70 R5 R6 00000000 00000007 00000007 F3A00C44 R7
R8 00000000 12C3DBC8 00000000 0014A146 R14 R15 00000000 12C3DBC8

-----LAST ECB TRACE FOR  IBM_DEFT

```

PJ40627 - USTKC

- **Assembler macro to get access to the user section of the application stack.**
- **The BEGIN macro indicates that the program uses the user section of the stack.**

- **Example:**

```
BEGIN NAME=CLH1 , IBM=YES , DSECT=WORKAREA , USEREG=R5                @PJ32792
CLASNAME DS      XL8                                                @PJ32792
CLH1LODC DS     XL(L'CK1LODC )                                       @PJ32792
APSTKC                                                    @PJ32792
```

- **Prior to PJ40627, register specified by BEGIN USEREG parameter can only be used to point to user area.**
- If USEREG register is altered in the program, reference to the user area on the stack is lost.

PJ40627 - USTKC

- With PJ40627, register specified by **BEGIN USEREG** parameter can be used for other purposes.
- USTKC will re-establish pointer to user area on the stack.

```

BEGIN NAME=BOF7,IBM=YES,TPFISOC=NO,DSECT=WRKBOF7,USEREG=R7           @PJ40766
ENTERNAME DS      CL4                                           @PJ40766
EVENTINF  DS      XL28      Size must be equal or greater than EVNBKL2 @PJ40766
APSTKC   ,                                                     @PJ40766
...
EVOBK   ,                                                     @PJ40766
USTKC   USEREG=R7,USING=YES                                     @PJ40766
USING   EVOBK,EVENTINF                                         @PJ40766
PNAMC   SAVENAME,FIELD=ENTERNAME,NAMETYPE=ENTER               @PJ40766
CLC     =CL4'BOFA',ENTERNAME   Called by BOFA (BOF7 parent ECB)? @PJ40766
JNE     BOF7770           No, jump and skip POSTC               @PJ40766
XC      EVNBKN(EVNBKL2),EVNBKN Zero event information           @PJ40766
MVC     EVNBKN,=CL8'IPDUBOFA'   Event name                       @PJ40766
LHI     R10,1           Set count to 1                           @PJ40766
STH     R10,EVNBKC1       Save count                             @PJ40766
POSTC   TYPE=CNT,BLOCK=EVENTINF,NFOUND=BOF7770                 @PJ40766
DROP    R7                                                     @PJ40766
BOF7770 DS      0H                                           @PJ40766

```


PJ40766 – ZRPDU CREATE controls

- **Additional controls to limit the number of ECBs used by ZRPDU CREATE**
- **Before PJ40766, the only control used was LODIC CLASS=IBMBATCH.**
 - The only way to control the number of ECBs is to alter allowed ECBs for LODIC CLASS=IBMBATCH.
 - ZSYSL ALTER CLASS-IBMBATCH ECB-*nbrecbs*
 - Other processes also use IBMBATCH

PJ40766 – ZRPDU CREATE controls

- **With PJ40766, a new control is available.**
 - Set the maximum number of ECBs used by ZRPDU CREATE.
 - ZRPDU CNTL SET MAXECBS-*maximumeccb*
 - Display the maximum ECB value.
 - ZRPDU CNTL DISPLAY MAXECBS
 - LODIC CLASS=IBMBATCH is still used.
 - If MAXECBS=0, controls will be the same as before PJ40766.
 - Default is MAXECBS=0.

PJ40766 – ZRPDU CREATE example

==> ZRPDU CNTL SET MAXECBS-25

```
CSMP0097I 22.00.07 CPU-B SS-BSS SSU-HPN IS-01
RPDU0005I 22.00.07 MAXIMUM ALLOWED ECBS FOR ZRPDU CREATE HAS CHANGED
NEW VALUE      = 25
PREVIOUS VALUE = 0
END OF DISPLAY+
```

==> ZRPDU CNTL DISPLAY MAXECBS

```
CSMP0097I 22.02.34 CPU-B SS-BSS SSU-HPN IS-01
RPDU0006I 22.02.34 DISPLAY OF ECBS FOR ZRPDU CREATE
MAXIMUM ALLOWED ECBS = 25
CURRENT IN USE ECBS  = 23
END OF DISPLAY+
```

PJ40774 – ZVFAC FILE

- **File VFA delay file pending records and keep the records in VFA.**
- **Options include:**
 - File all VFA delay file depending records
→ ZVFAC FILE ALL
 - File only records with a specific record ID
→ ZVFAC FILE RECID *id*
 - File specific file address
→ ZVFAC FILE FA *fileaddr*

==> ZVFAC FILE ALL

```
CSMP0097I 23.23.58 CPU-B SS-BSS SSU-HPN IS-01
VFAC0007I 23.23.58 FILE REQUEST COMPLETED FOR ALL RECORDS,
                NUMBER OF RECORDS FILED                1 459+
```

PJ40734 – Additional user classes for LODIC

- **Two additional LODIC user classes are available.**
- **LODIC user classes include:**
 - USRLOD1
 - USRLOD2
 - USRLOD3
 - USRLOD4
 - **USRLOD5 - new**
 - **USRLOD6 – new**
- LODIC CHECK,CLASS=USRLOD5,AVAIL=*label*
- Also Known As (AKA) names can be used in addition to USRLODx
 - Macro ULODEQ contains AKA names



Future: ECB Resource Monitor Enhancements

ECB Resource Monitor

- **Definitions**
 - **Resource**
 - A request (macro) that generates I/O,
 - Or a request to obtain core,
 - Or a request to obtain a pool record.
 - For example, a file of a record to DASD done by an ECB is a resource.
 - **Limit**
 - A preset value of the count of a resource used by an ECB where an action is taken.
 - **Action**
 - What the ECB resource monitor does when the count of a specific resource for an ECB has reached a limit value.
 - For example, if limit level 1 is reached, a message may be sent to the console.

**==> ZECBM DISPLAY**

CSMP0097I 22.39.01 CPU-B SS-BSS SSU-HPN IS-01

ECBM0026I 22.39.01 ECB RESOURCE LIMIT TABLE DISPLAY FOR CORE COPY

RESOURCE	1ST LIMIT WARNING	2ND LIMIT PERCENTAGE
CMBK	0	0
CRET	0	0
FILE	0	0
FIND	0	0
GFSL	0	0
GFSS	0	0
GRFS	0	0
RELF	0	0
ROUT	0	0
SERR	0	0
SNAP	0	0
SWBK	0	0
SYSH	0	0
TOUR	0	0
TWRT	0	0

FILT= 0 FILR= 0

WTOT= 0 WTOR= 0

ecbRM MONITORING IS: OFF

1ST LIMIT ACTION IS: MESSAGE

2ND LIMIT ACTION IS: MESSAGE

END OF DISPLAY+

Future: ECB Resource Monitor Enhancements

- **Limit Sets**

- Currently: One set of limits that is used for all ECBs.
 - An ECB can change limits using macro ECBMC SET.
- Concept: Provide ability for ECB to change limits based on a predefined name (or limit set name).
 - The limit set name references a limit set.
 - A limit set can have unique limit values for one, multiple, or all resources.
 - Allows easier management of different limit values for functions that require limits different than the system default limits.

Future: ECB Resource Monitor Enhancements

- **Limit Set Concept (continued)**

- Usage

- When ECB is created, it will use system default limits same as today.
- To use a limit set, an ECB will execute macro ECBMC SET with a new option to provide the limit set name.

- ZECBM command

- Create a limit set.
- Set and change limit values within a limit set.
- Remove limit values from a limit set.
- Display all values in a limit set.
- Delete a limit set.

Future: ECB Resource Monitor Enhancements

- **Allow selection of actions by Resource**
 - Currently: LEV1 and LEV2 actions apply to all resources
 - If LEV1=DMPR, when an ECB use of any resource (FIND, FILE, TOUR, SERR, etc.) reaches the level 1 limit, a dump with return will be taken.
 - Concept: Allow different actions based on the resource.
 - Example: Set LEV1=DMPR as the system default and set LEV1=MSG as the action for TOUR.
 - Using this example:
 - If an ECB reaches LEV1 for TOURC macros, a message will be sent to the console.
 - If an ECB reaches LEV1 for FILEC macros, a SERRC with return will be take.

Future: ECB Resource Monitor Enhancements

- **Query current resource counts**
 - Currently: Resource counts reside in structures referenced out of the ECB.
 - ECB page 2 field CE2RCT points to the IDCRCT structure
 - IDCRCT is an internal use structure with no guarantee that it will not change.
 - Concept: Provide a general use API to query current resource counts for an ECB.

z/TPF capability to consider: Owners

Owners

- **Recommend to register application ECBs to an owner**
- **Provides ability to identify who is using TPF resources**
- **Owner name is 32 bytes of printable characters**
 - High level qualifier is first 8 bytes
 - Mid level qualifier is next 8 bytes
 - Low level qualifier is last 16 bytes
- **Existing system services support owners**
 - Dumps
 - ZSTAT OWNER
 - ZTRAP
 - ZIDOT
- **Expect to produce more information based on owner name**

Register an ECB to an owner

- **Register ECB to an owner**
 - EOWNRC
 - tpf_eownrc()
- **Default owner name is:**
 - High level qualifier = IECB
 - Mid level and low level qualifier are blanks.
- **Z-commands owner name is:**
 - High level qualifier = ISMP
 - Mid level qualifier = z-command (e.g. ZSTAT)
 - Low level qualifier contains blanks.



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Notes

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