



IBM Software Group

TPF Users Group Spring 2007

z/TPF Internals Update

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Venue : Main Tent

AIM Enterprise Platform Software

IBM z/Transaction Processing Facility Enterprise Edition 1.1.0

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Agenda

- Check Processor Utilization
- Branch target check mode
- TPF 4.1 Maintenance Stream Changes
- Additional IBM presentations

Check Processor Utilization

Check Processor Utilization

- Workload License Charging
 - Software license fees based on amount of processor time used
 - Determined by highest 4 hour rolling average of MSUs over a month
 - Want transactions (core business) to determine license fees
 - Do NOT want batch type work to determine license fees
 - i.e. Nightly file maintenance / Schedule change / Reaccomodation

- z/TPF APAR PJ31424 gives ability to suspend work when processor utilization is too high
 - Gives ability to manage batch type work so that it does not drive license fees

Check Processor Utilization

- LODIC new extensions
 - New set of classes to check for utilization
 - UTILCLASS is a 1 - 8 character name
 - Has a utilization percentage
 - ▶ Processor utilization above this level will result in LODIC indicating that utilization is too high
 - Ability to exclude utilization from other utilities
 - ▶ Based on owner name
 - ▶ To exclude Recoup, owner name = ISMP.ZRECP
 - UTILCLASS is separate from existing resource utilization classes (i.e. BATCH; IBMBATCH)
 - ZSYSL command ADDs, Changes, Deletes UTILCLASS
 - ▶ UTILCLASS definitions kept in file system file

Check Processor Utilization

- LODIC new extensions (continued)
 - Actions for UTILCLASS are similar to resource classes
 - Actions can be for resource classes, utilization classes, or both
 - LODIC SUSPEND,UTILCLASS=
 - ▶ Intended for use in long running batch type jobs on TPF to cap utilization
 - ▶ Mark as suspendable - when utilization is too high, ECB will be suspended
 - ▶ Set once, checking will happen everytime ECB is dispatched
 - LODIC CHECK,UTILCLASS=
 - ▶ Intended to determine if utilization is too high to execute certain function
 - LODIC UNMARK,TYPE=UTILCLASS
 - ▶ ECB no longer suspendable
 - New Actions
 - LODIC UNMARK,PUSH=YES
 - ▶ Save current LODIC settings and set ECB as no longer suspendable for requested class
 - LODIC POP
 - ▶ Restore previous LODIC settings

Check Processor Utilization - Examples

■ LODIC SUSPEND with Utilization class

```
QZZ3010  DS      OH
          LODI C  SUSPEND, UTI LCLASS=UTI LCLS1
*        Do work ...
          LODI C  UNMARK, TYPE=UTI LCLASS
```

■ LODIC SUSPEND using PUSH with Utilization class

```
QZZ3020  DS      OH
          LODI C  SUSPEND, UTI LCLASS=UTI LCLS2, PUSH=YES
*        Do work ...
```

```
LODI C  POP
```

Check Processor Utilization - Examples

■ LODIC CHECK with Utilization class

```
QZZ3030 DS    OH
          LODI C CHECK, UTI LCLASS=UTI LCLS3, AVAI L=QZZ3_OK
*          Utilization is too high
          QZZ3_GO
QZZ3_OK  DS    OH
*          Activate work only when utilization is not too high
QZZ3_GO  DS    OH

CREMC QZZ4
```


Branch Target Check Mode

Branch Target Check Mode

- z/TPF migration aid
- z/TPF support of baseless assembler code has driven:
 - Use of branch relative (jump) instructions inside macros
 - When return from macro is to branch to a given label (branch target), branch relative instructions are used
 - If the macro is copied and executed from copied location, branch relative will not work
 - ▶ DEFBC RELATIVE=NO can be used to direct the macro to use branch instructions rather than branch relative
 - ▶ Problem is how to identify which programs copy and execute these macros from the copied location
- z/TPF APAR PJ31568 provides an execution time check mode to identify:
 - Macro executed outside of the program area
 - Macro uses branch target
 - And, macro assembled using branch relative instructions for the branch target
 - If found, ECB exited with SERRC E,003020 dump

Branch Target Check Mode

■ Example:

```

BXAC12      DS      OH          RESTART W/O MOUNT @PJ15959
            BAL     R7, BXAC70   HOOK KYPT, INPROG. FIELD
            MVC     EBW040(BXACTW-BXACTR), BXACTR MOVE TASNC/TREWC
            MVC     EBW040+3(3), BXCUD2SX   INSERT 'CAP' SYMB. NAME
            MVC     EBW040+9(3), BXCUD2SX   INSERT 'CAP' SYMB. NAME
            BAL     R7, EBW040     ASSIGN, REWIND TAPE
            XC      EBW048(44), EBW048     ZERO

```

...

```

BXACTR      DS      OH          @410.049
            TASNC  NAME=XXX      TAPE ASSIGN      @410.049
            PUSH   PRINT
            PRINT  GEN
            DEFBC  RELATIVE=NO, PUSH Do not generate branch relative
            TREWC  NAME=XXX, ERROR=BXACER, F=N TAPE REWIND @410.049
            DEFBC  POP=RELATIVE    Restore previous setting
            POP    PRINT
            BR     R7             RETURN TO PROGRAM
            SPACE R7
BXACTW      DS      OH          @410.049

```

Branch Target Check Mode

- To control Branch Target Check Mode
 - To turn on: ZSTRC ALTER BRCHECK
 - To turn off: ZSTRC ALTER NOBRCHECK

- When active:
 - SVC calls which use branch targets go to an intermediate service routine
 - ▶ If SVC is outside of the CRPA
 - ▶ And, if SVC has branch relative instructions where the branch target is located
 - ▶ Take SERRC E,003020
 - SVC calls which do not use branch targets are not impacted

- Recommendation
 - Turn on Branch Target Check Mode in z/TPF test systems

TPF 4.1 Maintenance Stream Changes

Maintenance Stream Changes for TPF 4.1 and TPFDF 1.1.3

June 2007

- GA TPF 41 PUT 21, TPFDF 1.1.3 PUT 22

Beginning July 2007

- APAR delivery will be entirely electronic
 - ▶ Individual APARs will continue to be available for download from the TPF Maintenance website
 - ▶ Cumulative PUT-level content will not be generated/provided
- PUT numbers will continue to be incremented on a yearly basis
- PUT number changes will be synchronized with the z/TPF and z/TPFDF GAs dates:
 - ▶ Nov 2007 - TPF 4.1 PUT 22, TPFDF 1.1.3 PUT 23 (short cycle)
 - ▶ Nov 2008 - TPF 4.1 PUT 23, TPFDF 1.1.3 PUT 24

Additional IBM Presentations

Additional IBM Presentations

- Main Tent
 - z/TPF Features by Michael Shershin
 - A Fresh Look at the Mainframe by Bill Supon and Stu Waldron
- Applications Subcommittee
 - Time Slice Enhancements in z/TPF by Rick Matela
- Communications Subcommittee
 - z/TPF Secure Key Management by Mark Gambino
- Database Subcommittee
 - File System update: PROCFS and SYSFS by Steve Record
 - TPFDF and z/TPFDF Update by Kevin Jones
- Development Tools Subcommittee
 - Toolkit Update by Mary Huang
- Distributed Systems Subcommittee
 - SOA Scenarios and Best Practices by Bill Cousins
 - z/TPF Web Services Update by Barry Baker
- Open Source and Languages Subcommittee
 - z/TPF GCC Compiler Update by Pete Lemieszewski

Additional IBM Presentations (continued)

- **Operations Subcommittee**
 - z/TPF Recoup Phase I Chain Chase Processing by Steve Roach
 - Recoup Deferred Lost by Michael Shershin
 - TPF Operations Server Update by Don Kallberg
- **Requirements Subcommittee**
 - TPF and z/TPF Requirements by Kevin Jones
 - TPFDF and z/TPFDF Requirements by Kevin Jones
- **SCP Subcommittee**
 - Check Processor Utilization (LODIC Extensions) by Bill Cousins
 - Tape Encryption by John Tarby
- **Performance Task Force**
 - CDC enhancements by Michael Shershin
- **TPF Toolkit Task Force**
 - TPF Debugger TPF Views by Josh Wisniewski
- **Education**
 - z/TPF Migration Experiences by Jeff VanMinde

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