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**Rule CIC259:** SUBTSKS=1 was specified in System Initialization Table

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**Finding:** CPExpert noticed that subtasking was specified (SUBTSKS=1) in the System Initialization Table (SIT).

**Impact:** This finding has a LOW IMPACT, MEDIUM IMPACT, or HIGH IMPACT on the performance of the CICS region. The level of impact depends on whether the SUBTSKS=1 specification was correctly made, and whether sufficient processor resources exist to support the subtasking overhead.

**Logic flow:** This is a basic finding, based upon an analysis of the System Initialization Table.

**Discussion:** CICS always has two or three TCBs for normal processing, depending on the release of CICS:

- The quasi-reentrant (**QR** mode) TCB executes the quasi-reentrant application code and most CICS code. This TCB is available in all releases of CICS.
- The resource-owning (**RO** mode) TCB is used for opening and closing data sets and for program loading. This TCB is available in all releases of CICS.
- The file-owning (**FO** mode) TCB is used for opening and closing data sets. This TCB is available beginning with CICS/Transaction Server for OS/390, Release 1.

CICS optionally has other TCBs, again depending on the release of CICS:

- The concurrent (**CO** mode) TCB is responsible for VSAM subtasking. This TCB is available in all releases of CICS, but is active **only** if SUBTSKS=1 is specified.
- The Front End Programming (**SZ** mode) TCB is described in the CICS/ESA Front End Programming Interface User's Guide. This TCB is available in all releases of CICS, but is active **only** if FEPI=YES is specified in the SIT.
- The Open Network Computing Remote Procedure Call (**RP** mode) TCB is used to make ONC/RPC calls. This TCB is available beginning with CICS/Transaction Server for OS/390, Release 3.

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- A CICS task has a **J8** mode TCB if it needs to run a JAVA Virtual Machine. This TCB is available beginning with CICS/Transaction Server for OS/390, Release 3.
  - The **SO** mode TCB is used to make calls to the sockets interface of TCP/IP. This TCB is available beginning with CICS/Transaction Server for OS/390, Release 3.
  - The **SL** mode TCB is used to wait for activity on a set of listening sockets. This TCB is available beginning with CICS/Transaction Server for OS/390, Release 3.
  - The **S8** mode TCB is used exclusively by a task if it needs to use the system Secure Sockets Layer. This TCB is available beginning with CICS/Transaction Server for OS/390, Release 3.
  - The **L8** mode TCB is identified in the *CICS Performance Guide* for OS/390, Release 3 (SC-33-16990-03 edition). However, the *Performance Guide* indicates that the J8 TCB is not in use for CICS/TS Release 3.

The objective of subtasks is to increase the maximum throughput of a single CICS system on multiprocessors. However, the intertask communication increases total processor utilization. Some of the subtasking is required to support specific CICS environments. However, the optional concurrent mode (CO) is implemented only if SUBTSKS=1 is specified in the SIT.

The default of the SUBTSKS parameter is SUBTSKS=0, which disallows concurrent mode TCBs. When SUBTSKS=1 is specified in the SIT, CICS takes the following actions:

- All Non -RLS VSAM file control WRITE requests to KSDS are subtasked.
- All other file control requests are never subtasked.
- Auxiliary temporary storage or intrapartition transient data requests are subtasked.
- Resource security checking requests are subtasked when the CICS main TCB (quasi-reentrant mode) exceeds approximately 70% processor activity.

IBM recommends that subtasking be used only in a multiprocessing system in a region that is limited by a single processor but has spare capacity on other processors in the MVS image. If subtasking is used in other

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circumstances, the subtasking can cause throughput degradation because of the dispatching of multiple tasks.

CPEXpert produces Rule CIC259 when SUBTSKS=1 has been specified in the SIT. The primary reason for producing Rule CIC259 is to alert you to the possibility that significant throughput degradation might be experienced in the CICS region because of the specification.

**Suggestion:** CPEXpert suggests that you consider the following questions:

- Is the CICS region operating in a multiprocessing environment (that is, will more than one engine be available for the CICS region)?
- Does the **main TCB** in the CICS region **and all equal or higher priority work** consume most of a single processor (at least 70% of the processor) during peak usage?
- Do other processors in the MVS image have spare CPU capacity that would be used by the subtask?
- Is there a significant amount of VSAM I/O activity occurring in support of the CICS region.

If the answers to **all** of the above question are “yes”, then subtasking might be an appropriate approach.

However, if any answer to the above questions is “no” then subtasking probably is not a correct approach. Only if the above conditions are always true, the overhead associated with subtasking probably should not be used. In this case, CPEXpert suggests that you change the SUBTSKS specification to disable subtasking of the concurrent TCB.

If you chose to continue with the SUBTSKS=1 specification in the SIT for this region, please “turn off” Rule CIC259 for the region (using the “turning off rules” process documented in Chapter 3.1 of Section 3 of the CICS Component User Manual.

**Reference:** *CICS/ESA Version 3.3.1 Performance Guide*: page 172.

*CICS/ESA Version 4.1.1 Performance Guide*: Section 4.4.11.

*CICS/TS Release 1.1 Performance Guide*: Section 4.4.11.

*CICS/TS Release 1.2 Performance Guide*: Section 4.4.11.

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*CICS/TS Release 1.3 Performance Guide: Section 4.5.11.*

*CICS/TS for z/OS Release 2.1 Performance Guide: Chapter 18 (Subtasking VSAM).*

*CICS/TS for z/OS Release 2.1 Performance Guide: Section 4.5.11 Permitting VSAM subtasking (SUBTSKS=1).*

**Thanks:** Bryant Osborn (Bank of America) suggested this rule and provided the basic information. Thanks, Bryant!