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TECHNICAL ADVISORY – Possible Scan Extension with Heavy Loading on CAMP Server

Janus processors and coprocessors include support for the “CAMP Server” fieldbus, which allows HMI and SCADA devices to access variables using the CAMP protocol which was used on CTI 2500-Cxxx processors and 2572-X Ethernet modules. This capability makes it easier to transition applications from Cxxx processors to Janus processors without having to make changes to HMI and SCADA.

It has been reported from the field and confirmed at CTI that the scan time can be periodically extended when there is heavy activity on the CAMP server. This can result in a max scan time of 40msec or more, even though the “typical” scan time may be only a few msec. In our test scenario, a Kepware OPC server was configured to poll more than 2000 variables on a 250msec interval. Our test recorded that the scan extension occurred on about 2% of scans, so 98% of scans had no impact.

This problem affects all Janus processors with firmware 1.24 and below, and Janus Coprocessors with firmware V1.05.

We’re presently working on a solution and will update this Technical Advisory when a fix is available. If you’re unsure whether you have this situation in your application, see the notes on the following page for instructions.

Robert Peck
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Viewing Cycle Statistics to Determine if You Have a CAMP Server Scan Extension

You can view your cycle statistics by opening the processor web page, and going to Statistics – Cycle Statistics. This screen capture shows the relevant entries to look for.



Janus PAC Classic V2 v01.24 2022-05-18

Module Clock: Wed, 2022-07-06 21:19:23 EDT Browser Clock: Thu Mar 02 2023 14:51:02 GMT-0500 (Eastern Standard Time)

Product Information
Application Information
Configuration
Event Log
Statistics
Error Descriptions & Status
Display All Pages
Custom HTML (graphics)
Acknowledgements
Product Support

Turn Auto Refresh On Clear Counts Last Cleared: Wed, 2022-07-06 21:18:33 EDT

Cycle Statistics	
Project Name / Compile Version	Janus_95095 [V159]
General Cycle Information	
..... Count of Cycles	15909
..... Maximum Cycle Time [μs]	44430
..... Average Cycle Time [μs]	2612
..... Minimum Cycle Time [μs]	1649
..... Cycle Mode	Variable Cycle
Cycle Components (in processing/execution)	
Binding Subscriber (Reading)	
..... Maximum Time per Cycle [μs]	90
..... Average Time per Cycle [μs]	2
IO Exchange (see details below)	
..... Maximum Time per Cycle [μs]	41440
..... Average Time per Cycle [μs]	711
ModBus Master and Slave	
..... Maximum Time per Cycle [μs]	69
..... Average Time per Cycle [μs]	2
User Logic Program Execution	
..... Maximum Time per Cycle [μs]	4542
..... Average Time per Cycle [μs]	1851
Binding Publisher (Writing)	
..... Maximum Time per Cycle [μs]	214
..... Average Time per Cycle [μs]	41
Ethernet/IP	
..... Maximum Time per Cycle [μs]	87
..... Average Time per Cycle [μs]	3

max cycle time
44msec

avg cycle time only
2.6msec

note most of the
44msec is coming
from 41.4msec
spent on CAMP
server

IO Exchange Details					
Field IO	Open Time [μs]	Exchange Times [μs]			Close Time [μs]
		Minimum	Average	Maximum	
CAMP Client	0	0	0	0	0
CAMP Server	408	32	697	41419	0
Data Cache Client	0	0	0	0	0
EIP Adapter	0	0	0	0	0
EIP FlexIO	0	0	0	0	0
EIP Scanner	0	0	0	0	0
EIP Tag Client	0	0	0	0	0
EIP Tag Server	0	0	0	0	0
Local IO	0	0	0	0	0
MQTT	0	0	0	0	0
OPCUA Server	0	0	0	0	0
Profibus DP	0	0	0	0	0
Remote IO	0	0	0	0	0