



Interactive Intelligence, Inc. Server Hardware Validation Testing Results

General Information:

Tester: Scott Brewer

Testing start date: 12/05/2008

Testing end date: 01/15/2009

Server Information:

Server Manufacturer: HP & NEI, Inc

Server Model: HP DL380G5 with EX-6000 XPand System

Serial Number: HP: 2UX72604F3 / NEI: E021408-19

Server Configuration: Dual, dual-core 5160 Xeon 3.0GHz., 1333MHz. FSB, 4MB L2, 4096MB PC2-5300 Fully Buffered DIMMs (DDR2-667), Smart Array P400 Controller with 512MB cache, RAID1(OS) + RAID10(Application+logging), (2) 72GB HP # DG72A9BB7 10K SAS SFF 2.5" drives & (4) 146GB HP #DG146ABAB4 10K SAS SFF 2.5" drives, six 60mm cooling fans (n+1) in host chassis, three 120mm cooling fans in the PCI expansion chassis, dual HP NC373i (Broadcom BCM5708 B2) Multifunction Gigabit Server Adapters, ATI ES1000 w/ 32MB RAM, Dual HP 900W PSUs (n+1) & Quad NEI 350W PSUs (n+1)1050w total. 16 PCI slots usable for telephony boards.

Platforms Tested:

- Aculab
- Aculab + AudioCodes
- Dialogic + AudioCodes

Aculab Testing Results

Software Configuration: Windows Server 2003 Standard Edition+SP1, CIC 3.0GA+SU4 & Aculab 1.10.1

Board Configuration: PCI slots 1 – 12 Aculab Prosody v1.5 boards, PCI slots 13-16 Aculab E1/T1 Trunk-only boards

General Observations: This is one of the biggest servers certified by I3 for use with Interaction Center. The system has excellent cooling capabilities considering 16 telephony boards were installed and loaded to capacity. The server is a very stout design that will handle all the power requirements of the 16 boards even when pulling one of the redundant PSUs to simulate a failure.

Testing Information:

Call volume tested: 8 calls/second, 480 calls/minute for 18 hours

Number of agents: 360 ACD agents via channel banks

Number of trunks: 48 ISDN Ni2 (loop-back)

+5VDC value at idle: 5.081VDC

+5VDC value under full load: 5.036VDC

Ambient lab temperature: 74.9° F

Maximum internal chassis temperature observed: 93.8° F

Average CPU Utilization with Default tracing: 62.68%

Average CPU Utilization with Field¹ tracing: 67.72%

Aculab + AudioCodes Testing Results

Software Configuration: Windows Server 2003 Standard Edition+SP1, CIC 3.0GA+SU4 & Aculab 1.10.1

Board Configuration: PCI slots 1 – 12 Aculab Prosody v1.5 boards, PCI slots 13-14 Aculab E1/T1 Trunk-only boards & PCI slots 15-16 AudioCodes IPM260A boards

General Observations: This is one of the biggest servers certified by I3 for use with Interaction Center. The system has excellent cooling capabilities considering 16 telephony boards were installed and loaded to capacity. The server is a very stout design that will handle all the power requirements of the 16 boards even when pulling one of the redundant PSUs to simulate a failure.

Testing Information:

Call volume tested: 8 calls/second, 480 calls/minute for 18 hours

Number of agents: 360 ACD agents (180 via channel banks + 180 via SIP)

Number of trunks: 48 ISDN Ni2 (loop-back)

+5VDC value at idle: 5.081VDC

+5VDC value under full load: 5.037VDC

Ambient lab temperature: 74.9° F

Maximum internal chassis temperature observed: 93.8° F

Average CPU Utilization with Default tracing: 71.98%

Average CPU Utilization with Field¹ tracing: 74.01%

Dialogic + AudioCodes Testing Results

Software Configuration: Windows Server 2003 Standard Edition+SP1, CIC 3.0GA & Dialogic SR6 SU190

Board Configuration: PCI slot 1 Dialogic D/480JCT-2T1 board, PCI slots 2 – 9 Dialogic DM/V1200BTEPW boards, PCI slot 10 Dialogic DM/V3600BP board, PCI slot 11 Dialogic HDSI1200 board, PCI slots 12 & 13 AudioCodes IPM260A (120 & 240 ports) boards

General Observations: This is one of the biggest servers certified by I3 for use with Interaction Center. The system has excellent cooling capabilities considering 13 telephony boards were installed and loaded to capacity. The server is a very stout design that will handle all the power requirements of 16 boards should all the PCI-X slots be populated.

Testing Information:

Call volume tested: 6 calls/second, 360 calls/minute for 18 hours

Number of agents: 480, 120 via HDSI & 360 via SIP

Number of trunks: 34 ISDN NI2 (loop-back)

+5VDC value at idle: 5.082VDC +5VDC value under full load: 5.053

Ambient lab temperature: 77.7° F

Maximum internal chassis temperature observed: 94.5° F

Average CPU Utilization with Default tracing: 24.06%

Average CPU Utilization with Field¹ tracing: 32.97%

Conclusions:

This Aculab configuration is the largest possible with Aculab and is also inclusive of the highest volume of calls ever certified with TDM hardware. The Interaction Center configuration did include 384 users via channel-banks. However only 240 users were assigned to the four ACD workgroups. The system would happily handle 8 calls/sec, 480 calls/minute without any signs of significant loading. The server was configured with three RAID-1 arrays separating the Operating System, Application and Logging overhead onto individual arrays. This server is ideally suited for large-scale implementations.

The Dialogic certification is a mix of SR6-compliant Dialogic components (Springware and DM3) with AudioCodes. The Interaction Center configuration did include 120 HDSI-based users and 360 SIP-based users. However, only 120 users were assigned to the three ACD workgroups. Additionally, we recommend you source your expansion chassis and the HP host from NEI Inc., since there are a number of BIOS/software modifications made to benefit/tune the overall solution

1- Field tracing is an increase of key Topic values under the IP, Notifier and TsServer subsystems in the Trace Configuration utility. These specific Topic values are increased to the highest Notes-level value of 80. This provides a much higher load on the storage subsystem to allow proper evaluation of hard drive and hard drive controller performance.