WinPAC Migration

- Performance Comparison

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Last Modified Date: Aug. 2016

Performance Comparison

A: WP-8000 (CE5) / WP-5000 (CE5) /VP-25Wx (CE5)

B: WP-9000-CE7 / WP-8x2x-CE7 / VP-x23x-CE7 / WP-523x-CE7

Operation Items	A	B
Booting time	About 30 sec.	About 30 sec.
Integer	1580 ops	**4042 ops**
Floating point	147 ops	**993 ops**
Memory	1527 ops	**4955 ops**
I/O	1.9 MHz	**2.6 MHz**

1. Integer operations – Number of 1000 different integer operation function calls within 1 second.
2. Floating point operations – Number of 1000 different float operation function calls within 1 second.
3. Memory operations – Number of read/write in the memory made during about 1 second.
4. I/O – The average time of calling _pac_outp command for 1,000,000 times.

Disk	A	B
System Disk Read (Data Size)		
1 KB	**1.7 ms**	3.39 ms
2 KB	**1.8 ms**	3.4 ms
8 KB	**2.3 ms**	4.2 ms
64 KB	768 ms	**6.5 ms**
256 KB	811 ms	**13.7 ms**
512 KB	900 ms	**22 ms**
System Disk Write (Data Size)		
1 KB	15.6 ms	**7.37 ms**
2 KB	18 ms	**7 ms**
8 KB	24.9 ms	**7.75 ms**
64 KB	858 ms	**15 ms**
256 KB	1223 ms	**44.3 ms**
512 KB	1582 ms	**928.5 ms**

Note: The shorter time, the better performance

I/O Module Items	A	B
8017HW	85 S/s	**90 K S/s**
8024W	155 KHz	**180 KHz**
8K DI	1085 KHz	**2000 KHz**
8K DO	400 KHz	**574 KHz**
87K AO	350 Hz	**477 Hz**
87K DI	390 Hz	**645 Hz**
87K DO	500 Hz	**755 Hz**

1. 8017HW 1 channels (without switching MUX) test: calls pac_i8017HW_ReadAIHex

2. 8024W Single AO channel tes: calls pac_i8024W_VoltageOut_Hex

3. 8054W 8 DI channels test: calls _pac_ReadDI

4. 8054W 8 DO channels test: calls _pac_WriteDO

5. 87019RW Single AI channel test: calls pac_ReadAIHex

6. 87024W Single AO channel test: calls pac_WriteAO

7. 87055W 8 DI channels test: calls pac_ReadDI

8. 87055W 8 DO channels test: calls pac_WriteDO

VGA Items	A	B
FillRect	170 ms	**55 ms**
Ellipse	**624 ms**	803 ms
Polyline	216 ms	**86 ms**
Polygon	**443 ms**	587 ms
Text out	192 ms	**110 ms**

Note: The shorter time, the better performance

VGA Items	A	B
Circle draw	935 to 1234	941
Rectangle draw	1594 to 2500	**3444**
Text draw	3301	**7673**
Scroll	50 to 52	**241**

Note: The large number, the better performance

Communication Items		A	B
FTP		155 KB/sec	**8495 KB/sec**
TCP Send Throughput	640 KB	340 Kbps	**9733 Kbps**
	80 MB	7327 Kbps	**61.8 Mbps**
TCP Recv Throughput	640 KB	364 Kbps	**9534 Kbps**
	80 MB	7323 Kbps	**61.8 Mbps**
UDP Send Throughput	640 KB	403 Kbps	**3080 Kbps**
	14.6 MB	7000 Kbps	**67.2 Mbps**
UDP Recv Throughput	640 KB	403 Kbps	**3080 Kbps**
	14.6 MB	7000 Kbps	**67.2 Mbps**
COM Port (COM1)		CPU usage: 24 %	**CPU usage: 5 %**
		Throughput: 9.6 K/s	**Throughput: 11.3 K/s**

FTP Transmission test – Upload/Download performance.

Winsock performance – Use Windows CE 5.0 test kit for A series, Windows Embedded Compact7 test kit for B series.

COM Port – The program open a thread to send 64 bytes data to a specified COM port (baudrate: 115200bps), and receive 64bytes data, looping to test and get the transmission throughput. Use Task manager to get the CPU usage of testing.