Article

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Decoding Intel processor models reported by Windows

When looking at system performance and capacity planning I need to know what processors a server is running.

In ^SystemPerformance Linux systems report Intel processors explicitly, for example:

```
processor   : 0
vendor_id   : GenuineIntel
cpu family  : 6
model       : 79
model name  : Intel(R) Xeon(R) CPU E5-2673 v4 @ 2.30GHz
stepping    : 1
microcode   : 0xffffffff
cpu MHz : 2294.685
```

Its pretty obvious this is a Broadwell E5-2673 v4 processor, and I can get the specifications and enough details to look at the SPECint rating and other information, for example:

[Intel reference](#)

This also gives me clues to the age of the host server... is it reaching end of life etc.

Windows reports processors in a more coded way, by reporting the environment variable PROCESSOR_IDENTIFIER for example:

```
Processor(s): 2 Processor(s) Installed.
             [01]: Intel64 Family 6 Model 79 Stepping 1 GenuineIntel ~1200 Mhz
             [02]: Intel64 Family 6 Model 79 Stepping 1 GenuineIntel ~1200 Mhz
```

This looks similar to the Linux example, but how can I tell what this processor is?

Solution 1: the easy way...

Ask someone managing the system to tell you what processors are being used!

- The information is available from the windows GUI.
- Or by command line: wmic cpu get name

For example:

```
E:\Profiles\myname>wmic cpu get name
Name
Intel(R) Xeon(R) CPU E5-2650 v4 @ 2.20GHz
Intel(R) Xeon(R) CPU E5-2650 v4 @ 2.20GHz
```

Solution 2: the hard way...

You need to be a detective. Breaking down the code in the PROCESSOR_IDENTIFIER string above:

Intel64 Family 6 Model 79 Stepping 1 GenuineIntel ~1200 Mhz

Family 6

Intel releases processors in families. A starting point is WikiChip:

[CPUID - Intel - WikiChip](#)

Processor Family 6 (Server) is Broadwell, Skylake, etc. The majority of performance data I get is this processor Family.

Model 79

Now search for the CPU model number.

Cascade Lake	SP, X, W	0	0x6	0x5	0x5	Family 6 Model 85
Skylake (Server)	SP, X, DE, W					
Broadwell (Server)	E, EP, EX	0	0x6	0x4	0xF	Family 6 Model 79
	DE, Hewitt Lake	0	0x6	0x5	0x6	Family 6 Model 86
Haswell (Server)	E, EP, EX	0	0x6	0x3	0xF	Family 6 Model 63
Ivy Bridge (Server)	E, EN, EP, EX	0	0x6	0x3	0xE	Family 6 Model 62

We can see that model 79 is a Broadwell processor.

- 2-socket servers use Broadwell EP, the E5-26nn V4 processors.
- 4 and 8-socket servers use Broadwell EX:
  - quad-CPU: Xeon E5-46nn v4, Xeon E7-48nn v4
  - octo-CPU: Xeon E7-88nn v4

Stepping 1

Stepping is the revision number of the model. Higher revision numbers are later versions of the same model.

Mhz

The reported processor speed will allow you to narrow down your search.

In this case made difficult/impossible because there is no 1.2GHz Broadwell processor, the system is probably running in power saving mode.

Number of CPU cores

In the first line of mgstat output look for *numberofcpus, for example:*

```
numberofcpus=32:x86^2^16
```

There are 32 cpus. On 2 processors (16 per processor).

You can also find NUMCPU: 32 in the cstat sections of ^SystemPerformance.

Remember that the system sees cpus (threads). So you need to look for a processor model with 8 *cores* per processor. From there you can narrow your search. Wikipedia is a good resource.

[Broadwell (microarchitecture) - Wikipedia](#)

From wikipedia I can see a couple of likely suspects:

- Xeon E5-2667 V4 and Xeon E5-2620 V4.

Summary

If you cannot get the details from the customer or access the server you can be a detective and (possibly) find the processor type.

[#Microsoft Windows Server](#) [#Performance](#) [#InterSystems IRIS](#)

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