

How to check if Vanderpool usage is ...



[ppippero](#) 7 posts since

Mar 5, 2006 Hi,

I am trying vmware server on an Centrino Duo Inspiron 9400. I both tried to enable and disable VT support in the BIOS, but I see no difference in how VMWAre is working.

I also made the test that checks vanderpool precence suggested somewhere in the forum, and I in both cases:

0xFFBFFFF

The same values comes out with an old p4.

Regards



[KevinG](#) 16,980 posts since

Jan 8, 2004 **1. Re: How to check if Vanderpool usage is enabled?** Mar 5, 2006 4:25 AM

I believe that your Laptop includes a Intel® Core# Duo Processor that does not have VT technology

<http://www.intel.com/products/processor/coreduo/index.htm>



[ppippero](#) 7 posts since

Mar 5, 2006 **2. Re: How to check if Vanderpool usage is enabled?** Mar 5, 2006 7:52 AM

From the link pointed by you, I found the following datasheet:

<http://download.intel.com/design/mobile/datashts/30922101.pdf>

At page 7 (Introduction) it clearly states:

"[...]

The following list provides some of the key features on this processor:

[...]

* Intel Virtualization Technology

[...]"

I also have the option, in the BIOS to enable of disable this. I think the problem is that the core duo has VT but not EM64T.

Do you have a check program that I can execute to test instructions?

Regards



[KevinG](#) 16,980 posts since

Jan 8, 2004 **3. Re: How to check if Vanderpool usage is enabled?** Mar 5, 2006 9:38 AM

 in response to: [ppippero](#) Hi ppippero,

How to check if Vanderpool usage is ...

Well you are right, 😊 it does mention Intel Virtualization Technology.

I was looking for this when I visited the Intel Web site and must have missed it.

Do you have a check program that I can execute to test instructions

I believe Petr posted something here in the forums.

<http://www.vmware.com/community/thread.jspa?messageID=345088񔐀>



[ppipper](#) 7 posts since

Mar 5, 2006 4. **Re: How to check if Vanderpool usage is enabled?** Mar 5, 2006 10:45 AM

👤 in response to: [KevinG](#) Hi Kevin,

Yes I see this when compiling the program:

```
LIMIT=FFBFFFFFF
```

(Virtual Machine: Linux Knoppix, Guest: WindowXP).

Are there option I could put inthe .vmx file to force VT usage?



[KevinG](#) 16,980 posts since

Jan 8, 2004 5. **Re: How to check if Vanderpool usage is enabled?** Mar 5, 2006 10:52 AM

👤 in response to: [ppipper](#) Are there option I could put inthe .vmx file to force VT usage?

It should detect the VT. You don't have to put anything in the .vmx file to enable VT



[petr](#) 7,218 posts since

Jul 10, 2003 6. **Re: How to check if Vanderpool usage is enabled?** Mar 13, 2006 5:23 PM

👤 in response to: [ppipper](#) Workstation 5.5 and Server 1.0 use VT only if your processor is capable of 64bit VT...

You can try contacting support asking for VT support on 32bit pieces as well. As you use Linux host, you can experiment with Vmx86_VTSupportedCPU() in the vmmon driver. Currently driver tests for VT64_* defines only. You can just try to change this function to always return TRUE - at worst your host will reboot on poweron, at best it will

work in VT mode, and most probably there will be no change in the behavior 😞



[jondavis](#) 18 posts since

Feb 8, 2006 7. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 1:21 PM

👤 in response to: [petr](#) Just ran the test C script petr provided in the other script on a Pentium D 920 (dual core Pentium with VT support) and got "LIMIT=FFBFFFFFF".

As you can see in the following page from Intel, the Pentium D 920 supports VT technology and "EM64T" so I don't see why Vmware server is not using VT?

http://www.intel.com/products/processor_number/body_view_pd.htm

The open source Xen supports VT on this processor so it should be technically possible to do so right?

How to check if Vanderpool usage is ...



[RDPetruska](#) 15,877 posts since

Jan 11, 2005 8. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 10:14 AM

👤 in response to: [jondavis](#) Does your motherboard BIOS support the VT functionality of your CPU? The BIOS needs to be able to turn on the VT support (much the same as BIOS's needed to understand HT before you could enable that).



[Peter_vm](#) 9,058 posts since

Feb 1, 2006 9. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 10:16 AM

👤 in response to: [jondavis](#) But what running this check:

<http://download3.vmware.com/software/wkst/VMware-guest64check-5.5.0-18463.exe>

say?



[jondavis](#) 18 posts since

Feb 8, 2006 10. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 11:08 AM

👤 in response to: [Peter_vm](#) RDPetruska -- Yes the BIOS supports VT and VT is enabled in the BIOS settings.

[Peter_vm](#) -- Running the linked app pops up a window that says "This host is capable of running a 64-bit guest operating system under this VMware product" (titlebar says "VMware 64-bit Compatibility Check Passed").



[Peter_vm](#) 9,058 posts since

Feb 1, 2006 11. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 11:10 AM

What CPU you have in it?

I believe Dell sells Inspirons with CPU up to T2600.

Somewhere I have read that the first Core Duo to have VT truly enabled is T2700. But I'm not sure if it is a BIOS or a CPU issue.

<http://www.theinquirer.net/?article=29434>



[jondavis](#) 18 posts since

Feb 8, 2006 12. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 11:14 AM

👤 in response to: [Peter_vm](#) I answered this in an earlier post above (Intel Pentium D 920). It's not a Core Duo like the thread starter.



[Peter_vm](#) 9,058 posts since

Feb 1, 2006 13. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 11:33 AM

👤 in response to: [jondavis](#) And Intel D 920 has VT, VMware check utility tests it fine.

So the only problem is with Petr's C script?

How to check if Vanderpool usage is ...

Sorry, that should be a question:

And Intel D 920 has VT, does VMware check utility test it fine?


Message was edited by:

Peter_vm



[RDPetruska](#) 15,877 posts since

Jan 11, 2005 14. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 11:58 AM

 in response to: [jondavis](#) RDPetruska -- Yes the BIOS supports VT and VT is enabled in the BIOS settings.


Peter_vm -- Running the linked app pops up a window that says "This host is capable of running a 64-bit guest operating system under this VMware product" (titlebar says "VMware 64-bit Compatibility Check Passed").

OK. So, what exactly is your problem then? Have you tried to create and power on a 64-bit guest?



[jondavis](#) 18 posts since

Feb 8, 2006 15. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 12:41 PM

 in response to: [RDPetruska](#) The problem is that running the program provided by petr from inside the guest shows that VT isn't being used (the result of running the program here:


<http://www.vmware.com/community/thread.jspa?messageID=345088񔐀> is "LIMIT=FFBFFFFFF").

I've tried that same program on vmware server for linux and Workstation 5.5.1 build-19175 in Windows and get the same answer ("LIMIT=FFBFFFFFF") meaning neither product is using the VT functions of the processor.



[jondavis](#) 18 posts since

Feb 8, 2006 16. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 12:49 PM

 in response to: [Peter_vm](#) So the only problem is with Petr's C script?

Sorry, that should be a question:

And Intel D 920 has VT, does VMware check utility test it fine?

Right. Running that vmware check utility on the *host* (the exe file you linked) seems to say that the processor supports 64bit vt functions but running the test program by petr in the actual *guest* says that the VT functions aren't being used by the guest OS.


So the question is petr's test program broken or does neither Vmware workstation nor vmware server support Intel VT?



[RDPetruska](#) 15,877 posts since

How to check if Vanderpool usage is ...


Jan 11, 2005 17. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 12:50 PM

 in response to: [jondavis](#) I don't think it matters to run this inside a guest. I don't think the guest knows (nor cares) that it is running via a VT-capable/enabled processor. The mere fact that you have one allows your host to run the 64-bit guest in the first place. What are the results when you run it on the HOST? And, since the processor check utility gave you the green light for running 64-bit guests, I ask again, "What exactly is the problem?" Can you create and run a 64-bit guest? What is it that you are trying to do that you cannot do?



[jondavis](#) 18 posts since

Feb 8, 2006 18. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 1:15 PM

 in response to: [RDPetruska](#) RDPetruska--the point of this thread is to get the virtualization technology working (called "Vanderpool" by Intel).

What I'm trying to do is get a VMware product to take advantage of the VT technology present in some of these Intel chips that allows the guest OS to run at native or close to native speed (theoretically). See here for more info:


<http://www.intel.com/technology/computing/vptech/>

The benefit of VT enabled processors is the performance improvement in running virtualized guests (whether the guest OS is 32 or 64bit is not really relevant).



[rcardona2k](#) 5,202 posts since

Oct 20, 2005 19. **Re: How to check if Vanderpool usage is enabled?** Mar 24, 2006 9:04 PM

 in response to: [jondavis](#) Jon,

I believe Rob understands your point. A guest OS running inside of VMware will not reflect the presence of VT, that does not mean the host application isn't taking advantage of VT. That just means a guest OS attempting to leverage VT will not attempt VT virtualization within virtualization, e.g. running Xen 3.0 in a guest OS.

The 64-bit guest OS application test means little as there are 64-bit processors without VT.

VMware says if your CPU possesses VT capabilities and that capability isn't disabled by BIOS, then they will leverage those instructions. It appears you want some sort of confirmation like in the vmware.log or in the About Box or something like "Running with VT".

Unlike hyperthreading which manifests itself clearly with more logical processors, active VT is not nearly as obvious.



[Peter_vm](#) 9,058 posts since

Feb 1, 2006 20. **Re: How to check if Vanderpool usage is enabled?** Mar 25, 2006 6:55 AM

 in response to: [rcardona2k](#) Jon,

I believe Rob understands your point. A guest OS running inside of VMware will not reflect the presence of VT, that does not mean the host application isn't taking advantage of VT. That just means a guest OS attempting to leverage VT will not attempt VT virtualization within virtualization, e.g.

How to check if Vanderpool usage is ...

running Xen 3.0 in a guest OS.

Obviously. I agree.

The 64-bit guest OS application test means little as there are 64-bit processors without VT.

Are then saying that is possible to have Intel non-VT processor (or VT disabled in BIOS), EMT64 capable, and 64-bit guest OS?

Do you have an example of that?

VMware says if your CPU possesses VT capabilities and that capability isn't disabled by BIOS, then they will leverage those instructions. It appears you want some sort of confirmation like in the vmware.log or in the About Box or something like "Running with VT".

Unlike hyperthreading which manifests itself clearly with more logical processors, active VT is not nearly as obvious.

I thought that VMware 64-bit check utility was sufficient proof of VMware ability to leverage VT class instructions.

You disagree?



[RDPetruska](#) 15,877 posts since

Jan 11, 2005 21. **Re: How to check if Vanderpool usage is enabled?** Mar 25, 2006 8:22 AM

in response to: [Peter_vm](#) The 64-bit guest OS application test means little as

there are 64-bit processors without VT.

Are then saying that is possible to have Intel non-VT processor (or VT disabled in BIOS), EMT64 capable, and 64-bit guest OS?

Do you have an example of that? I believe Richard was referring to the AMD chips which do currently support 64-bit guests. AFAIK, NO Intel chips without VT support 64-bit guests. And, that's the point I was trying to make to jon.

Rob



[Peter_vm](#) 9,058 posts since

Feb 1, 2006 22. **Re: How to check if Vanderpool usage is enabled?** Mar 25, 2006 8:52 AM

in response to: [RDPetruska](#) I believe Richard was referring to the AMD chips which do currently support 64-bit guests. AFAIK, NO Intel chips without VT support 64-bit guests. And, that's the point I was trying to make

How to check if Vanderpool usage is ...

to jon.

Rob

Sorry, I thought that this thread was about Intel processors (thread subject and two examples given: Core Duo and D 920).

I know that certain AMD processors are supported for VMware 64-bit guest OS-es, but I thought that was not relevant in this thread context.



[ppippero](#) 7 posts since

Mar 5, 2006 23. **Re: How to check if Vanderpool usage is enabled?** Mar 27, 2006 5:38 AM

in response to: [rcardona2k](#) I Just tested the petr VT test

<http://www.vmware.com/community/thread.jspa?messageID=345088񔐀>

On a vmware competing product, which have a "Enable VT" checkbox: it correctly states:

LIMIT=FFFFFFFF (if VT is enabled in BIOS/in the program) or LIMIT=FFBFFFFFF (if VT is excluded by BIOS)

On a Centrino Core Duo. Just to clear, ALL CENTRINO CORE DUO have VT support and not only some of them.

If you enable VT in your "real machine", your virtual machines will have a slightly different behaviour and will work faster under some circumstances (lots of system calls).



[Peter_vm](#) 9,058 posts since

Feb 1, 2006 24. **Re: How to check if Vanderpool usage is enabled?** Mar 27, 2006 6:50 AM

in response to: [ppippero](#) On a Centrino Core Duo. Just to clear, ALL CENTRINO

CORE DUO have VT support and not only some of them.

Did you perform any VT test (VMware check or Petr C script test) on Core Duo machine?



[ppippero](#) 7 posts since

Mar 5, 2006 25. **Re: How to check if Vanderpool usage is enabled?** Mar 27, 2006 12:41 PM

in response to: [Peter_vm](#) Yes, the above is done through Petr C script test on a Centrino Duo Dell Inspiron 9400.



[ppippero](#) 7 posts since

Mar 5, 2006 26. **Re: How to check if Vanderpool usage is enabled?** Mar 27, 2006 12:54 PM

in response to: [ppippero](#) Just to clarify again, this is what happens on my Inspiron 9400 (Centrino Core Duo T2600)

With VMWare:

Executing Petr C script in a virtual machine I get the following result:

LIMIT=FFBFFFFFF

regardless I enable or disable from BIOS the VT support.

With a product competing with vmware:

How to check if Vanderpool usage is ...

Executing Petr C script in a virtual machine I get the following result:

LIMIT=FFFFFFFF

when the VT is enabled in BIOS, and:

LIMIT=FFBFFFFFFF

when VT is disabled from the BIOS or from the "competing program".

Given the above, I can say for sure that:

- Current VMWare Server is unable to use VT in CPU that have not 64bit extensions.

So the question is:

- is VT support on not-64bit cpu planned ?



[jondavis](#) 18 posts since

Feb 8, 2006 27. **Re: How to check if Vanderpool usage is enabled?** Mar 27, 2006 1:06 PM

in response to: [ppipper](#) Finally someone who can confirm my results!

Thanks for sharing the info ppipero. I think it's pretty clear that vmware's VT support either doesn't exist or is broken at this time.

A small point: not sure about the Core Duos but the Pentium D Dual core does support "EM64T" (64bit extensions) and the vmware check utility confirms that it can run 64 bit guest OSs. So I would revise your last bullet point to:

- Current VMWare Server is unable to use VT



[petr](#) 7,218 posts since

Jul 10, 2003 28. **Re: How to check if Vanderpool usage is enabled?** Mar 28, 2006 5:32 AM

in response to: [jondavis](#) - Current VMWare Server is unable to use VT

You cannot use 64bit guests on Intel processor without using VT, so this is definitely incorrect... Try rebuilding LSL test as 64bit program and run it on Intel and AMD VM - inside AMD VM it will report FFFFFFFF, inside Intel VM it will report FFFFFFFF.



[jondavis](#) 18 posts since

Feb 8, 2006 29. **Re: How to check if Vanderpool usage is enabled?** Mar 28, 2006 5:33 PM

in response to: [petr](#) Good news!

Petr private messaged me this message which worked and VT now seems to be working in Vmware server:

"Try adding

```
monitor_control.vt32 = "TRUE"
```

into *.vmx. Your guest may crash, computer caught fire, you know... But maybe it will just work..."

Petr's test program in the other thread that didn't give the correct output before now works when the monitor_control setting is added in (now gives output of "LIMIT=FFFFFFFF" in the guest machine meaning VT is being used). And no crashes, fires, etc 😊.

How to check if Vanderpool usage is ...

Thanks petr.

(Posted this in the other thread earlier by accident)



[ppipper](#) 7 posts since

Mar 5, 2006 30. Re: How to check if Vanderpool usage is enabled? Mar 29, 2006 10:59 AM

in response to: [jondavis](#) I can confirm that adding:

```
monitor_control.vt32 = "TRUE"
```

in the .vmx file, Vanderpool (VT) support appears to work (LIMIT returns the correct value) under a centrino core duo 2600.

Where I have to expect a performance gain, thanks to VT?



[jmattson](#) 1,225 posts since

Mar 29, 2006 31. Re: How to check if Vanderpool usage is enabled? Mar 29, 2006 2:56 PM

Workstation 5.5 and Server 1.0 only officially support Vanderpool in long mode. Even on an EM64T system, Vanderpool instructions will only be used (by default) when the guest is executing in long mode. In particular, this means that 32-bit guests will not use Vanderpool instructions, even on an EM64T system. There is a monitor control flag to modify that behavior, but its use is not supported or recommended.

Thus, in a 32-bit guest, Petr's program should report 'LIMIT=FFBFFFFFFF', indicating that VT is not in use, regardless of the capabilities of the host. Since VT is required for 64-bit guests on EM64T hosts, these guests should report 'LIMIT=FFFFFFFF', indicating that VT is in use. Of course, 64-bit guests cannot be executed on existing Core Duo processors, since they do not support EM64T.

You can use Petr's program to check for VT usage, or you can check the vmware log file. In the log file for a 64-bit guest on a VT-capable EM64T system, you should be able to find the message, "vmm64: VT enabled".



[jondavis](#) 18 posts since

Feb 8, 2006 32. Re: How to check if Vanderpool usage is enabled? Mar 29, 2006 3:15 PM

in response to: [ppipper](#) Where I have to expect a performance gain, thanks to

VT?

I actually experienced a significant drop in performance (well over 2 to 3 times slower) after enabling the monitor_control.vt32 flag.

I noticed that there were dozens of what looks to be debug information being pumped out to the vmware.log file every second while the guest OS was on so it looks like although VT works on 32bit OSs, there's still a bit of bug-fixing to do.



[Sander_S](#) 3 posts since

May 8, 2006 33. Re: How to check if Vanderpool usage is enabled? May 8, 2006 3:18 AM

in response to: [jondavis](#) I can confirm your findings with VMWare Workstation.

How to check if Vanderpool usage is ...



[jondavis](#) 18 posts since

Feb 8, 2006 **34. Re: How to check if Vanderpool usage is enabled?** May 8, 2006 10:58 AM

↑ in response to: [Sander_S](#) I've had discussions on this topic with vmware reps on this board and it seems they basically have no interest in fixing their VT support for 32 bit OS.

I've now stopped pursuing this issue have moved onto a different product that actually has working VT support (and is faster than vmware in every bench as a result).

Right now there are two different (non-VMware) products with working VT support and there's probably more coming. Maybe one day vmware will see the light and actually add support for it.



[ksc](#) 465 posts since

Sep 21, 2005 **35. Re: How to check if Vanderpool usage is enabled?** May 8, 2006 11:22 AM

↑ in response to: [jondavis](#) 32-bit VT works, is not tuned, and won't be officially supported unless it can offer the same performance that users of 32-bit VMs expect. Which probably won't be for another generation or two of VT-like instructions.

At this point, 32-bit VT is about as useful as support for a 387 math coprocessor on a Pentium - in both cases, the overhead of the support wipes out the gains. 64-bit VT is necessary because Intel CPUs need that to run 64-bit guests (and it is tuned such that performance is similar to 64-bit non-VT); 32-bit VT just isn't necessary, unless you have a reason why it should be?

Why do you want 32-bit VT support? In what case is 32-bit VT desirable?



[caleb99](#) 49 posts since

Jul 29, 2005 **36. Re: How to check if Vanderpool usage is enabled?** May 8, 2006 11:24 AM

↑ in response to: [jondavis](#) What product are you using that has full VT support?



[jondavis](#) 18 posts since

Feb 8, 2006 **37. Re: How to check if Vanderpool usage is enabled?** May 8, 2006 11:49 AM

↑ in response to: [ksc](#) 32-bit VT works, is not tuned, and won't be officially supported unless it can offer the same performance that users of 32-bit VMs expect. Which probably won't be for another generation or two of VT-like instructions.

Benchmarks on one of the competing programs I mentioned shows that there's a significant speedup when VT is enabled.

In fact, enabling VT makes the competing product faster than VMware in *every single bench* and the response times in that virtualization product when VT is enabled feels like native performance (or very close to it).

If you've read any blogs and some review sites lately, you'll notice people have been raving about the Mac version of that competing companies product that is impressing people due to it's speed on the (VT-enabled) Intel macs.

How to check if Vanderpool usage is ...

I would urge the VMware devs to get a copy of the VT enabled product I'm referring to since the company has a trial available and test with VT on and off and also compare it to VMware with VT on. I'm not making up numbers.

I don't feel like repeatedly arguing this point of "VT support makes it faster" when the VMware devs could just as easily bench the two products and see how VT is indeed faster. Just because your 32bit VT support is broken doesn't mean VT is going to make things slower.

32-bit VT works

I wouldn't call running 3 times slower than with VT disabled (as Sander_S above confirms) "works". It's broken plain and simple.

To the person who requested the name of the products I'm referring to--I don't think I could say it publicly on this board and I don't want to be accused of shilling for the competing companies. If you want to know, send me a private message and I'll reply there.