

Re: NdisAllocateMemoryWithTag(Priority) -> Does it ensure Congtiguous physical memory by default?

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Source:

<http://www.tech-archive.net/Archive/Development/microsoft.public.development.device.drivers/2008-09/msg00421.html>

- *From:* "Alireza Dabagh [MS]" <alid@xxxxxxxxxxxxxxxxxxxxxx>
 - *Date:* Fri, 19 Sep 2008 03:27:25 -0700
-

I believe in W2K8 if your device does 64 bit DMA, when you call NdisMAllocateSharedMemory you will get high physical addresses before getting low addresses (system tries to reserve low addresses for those devices that can not do 64 bit DMA.).

Have you tried NdisAllocateSharedMemory to see what address range you get?

NDIS does not provide an API to allocate physically contiguous memory outside what HAL DMA APIs provide (NdisMAllocateSharedMemory is a wrapper around DmaChannel->AllocateCommonBuffer). There is a very good reason for this. DMA APIs take into account what your device can address. mm APIs that allow you to allocate physical address directly have no idea of the device capabilities (there is no PDO parameter). Going forward it will become even more important to go through HAL DMA APIs to allocate physical addresses.

In any case, seems like you just need this for testing purpose. If what I said about W2K8 turns out to be false, just allocate as much memory as you can in your driver. At some point the physical address would end up going over 32 bit.

-ali

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"Praveen Kumar Amritaluru" <apraveen.kumar@xxxxxxxxxx> wrote in message news:eONlaccGJHA.4596@xxxxxxxxxxxxxxxxxxxxxxxxxx

Hi Pavel,

But this needs special hardware (system with PAE support running x86 version of OS) which is not necessarily the case with a developer's test-system.

But this info is helpful though.

Regards,

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-Praveen

"Pavel A." <pavel_a@xxxxxxxxxxxxxxxx> wrote in message
news:e8lTEubGJHA.3504@xxxxxxxxxxxxxxxxxxxxxxxxxxxx

Maybe /nolowmem boot option is what you need?
(described in windbg help file)

Regards,
--PA

Praveen Kumar Amritaluru wrote:

OK. Let me put the requirements clearly.
My earlier mail is not clear I suppose.

The requirement is that from within driver memory
allocation needs to be made
that falls within a range. One example requirement is when
we want memory allocation
such that physical address contains non-zero bits in higher
32 bit (of 64-bit physical address)
to test the handling of device that is supposed to handle
physical memory more than 4 GB (> 32 bits).

I am trying to figure if there is one or set of NDIS calls that
can do this.

With NdisMRegisterScatterGatherDMA I can only say that
dont give 64-bit addresses since my device only supports
32-bit.
Even I say my device supports 64-bit, there is no guarantee
that memory allocated to my device falls above 4 GB.

Regards,
-Praveen

"Pavel A." <pavel_a@xxxxxxxxxxxxxxxx> wrote in message
news:uP2bPwXGJHA.4984@xxxxxxxxxxxxxxxxxxxxxxxxxxxx

NdisAllocateMemoryWithTag(Priority)
allocates nonpaged pool.
Therefore it is not physically contiguous and
not limited
by "highest physical address".

For allocation of DMA shared memory use
NdisMRegisterScatterGatherDma;
it lets you specify 32- or 64-bit capability

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of the NIC.

Regards,
--PA

Praveen Kumar Amritaluru wrote:

DMA_OPERATIONS->AllocateCommonBuffer()
seems to be allocating
physically contiguous bufer.
Is there an equivalent Ndis()
since
NdisAllocateMemory() is
obsoleted on Vista and
above?

Also is there an Ndis() or
any equivalent call to
specify the range of physical
address?
Basically highest accetable
physical address?

Regards.
-Praveen

"Praveen Kumar
Amritaluru"
<praveen.kumar@xxxxxxxx>
wrote in message
news:uTxJhUXGJHA.1272@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Hi,

NdisAllocateMemory
has been
obsoleted
by
NdisAllocateMemoryWithTag
which in
turn has
been
obsoleted
by
NdisAllocateMemoryWithTagPriority,
as per the
WDK for
Vista(6.0)
and above.

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The docs
say that
NdisAllocateMemoryWithTag(Priority)
is same as
NdisAllocateMemory()
except that
it allows the
caller to
supply a
tag.

But other
differences
are:
1. No
argument
where you
can specify
flags?
2. No
"highest
physical
address"
field.

Now what
is the
default
behaviour
with
NdisAllocateMemoryWithTag(Priority)?
Does it
always
allocate
physically
contiguous
memory?
OR does it
always
make best
effort to do
so though
its not
guaranteed?
What if
there is a
need for
non-cached
memory?

I am not

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sure if the
above
requirements
have been
taken care
of - in a
different
way in
NDIS 6.0.

Thanks,
-Praveen

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