

Contact: Tim Bieda freenas@ex0r.de

Realtek vs. Intel network card Quick Bench in a FreeNAS Environment

Sorry for my english!

German: Ich kann das ganze gerne auch noch mal in Deutsch veröffentlichen. Einfach an die Adresse in der Kopfzeile schreiben.

NAS System:

Hardware:

AsRock QC-5000

8GB DDR3-1600 (-64MB Graphic Mem)

AMD A4-5000 APU

Full Hardware AES-NI Support

Realtek Onboard Chip, no jumbo packets, standard MTU

-and-

Intel EXPI9301CTBLK PRO1000 PCIe x1 in PCIe x16 Slot (yep this works)

Samsung S840Pro 256GB SSD

Software:

Freenas 9.3 Stable

Samba CIF Share (Samba is single threaded)

No autotune features

Full Disc Encryption

Network:

Switch: FritzBox 7490 (yeah yeah...i know...)

no other loads in the network

Ca. 10m Cat 7 network cable

Cat. 6A patchpanel

Cat 6 network outlets

Cat 6 and cat 5e patchcables (<=3m)

Client System

Lenovo Thinkpad T430s

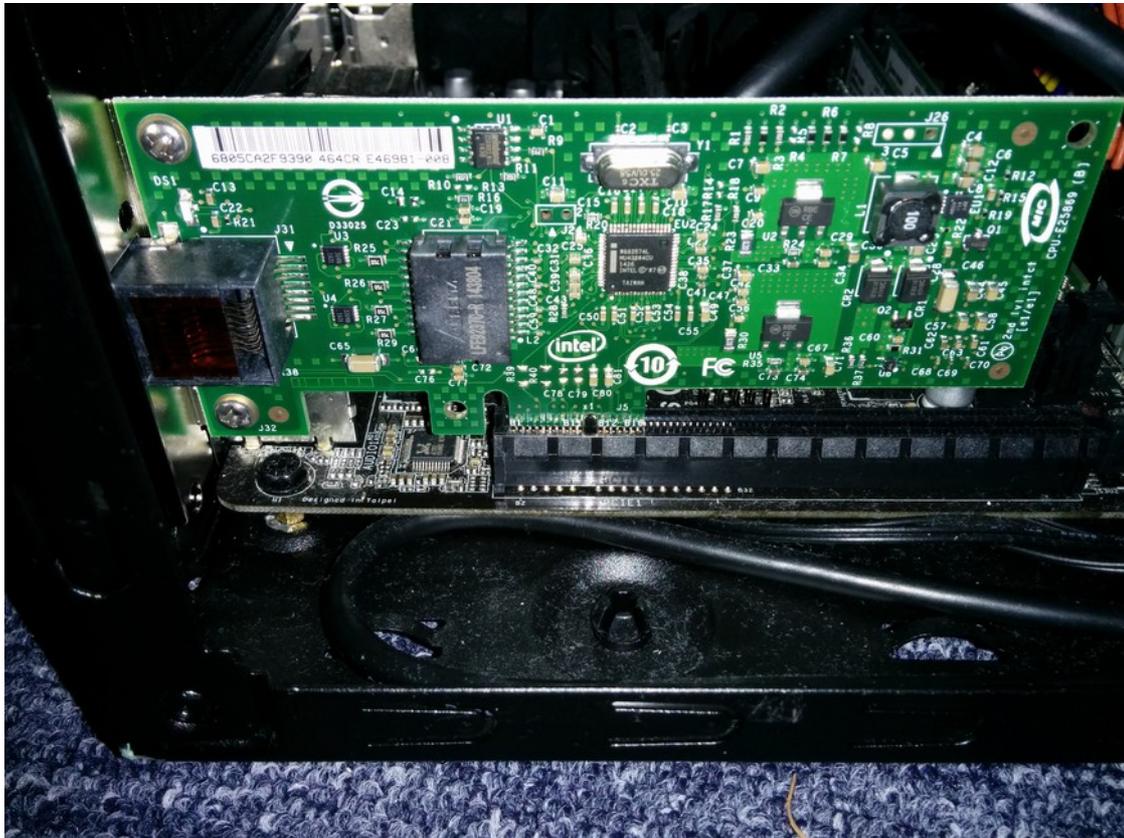
8GB RAM

Samsung S830 128GB SSD

Directly attached to a network outlet

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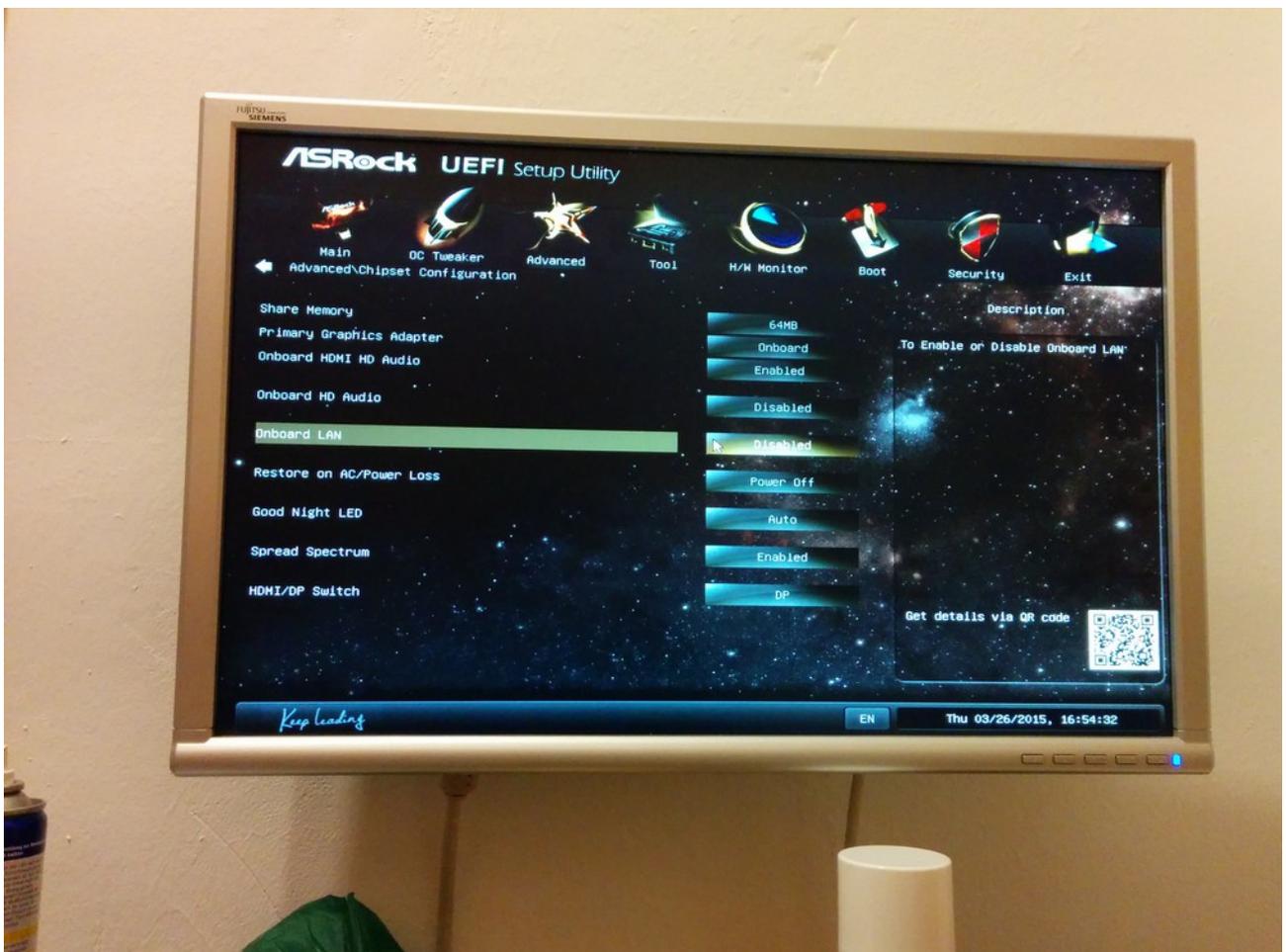
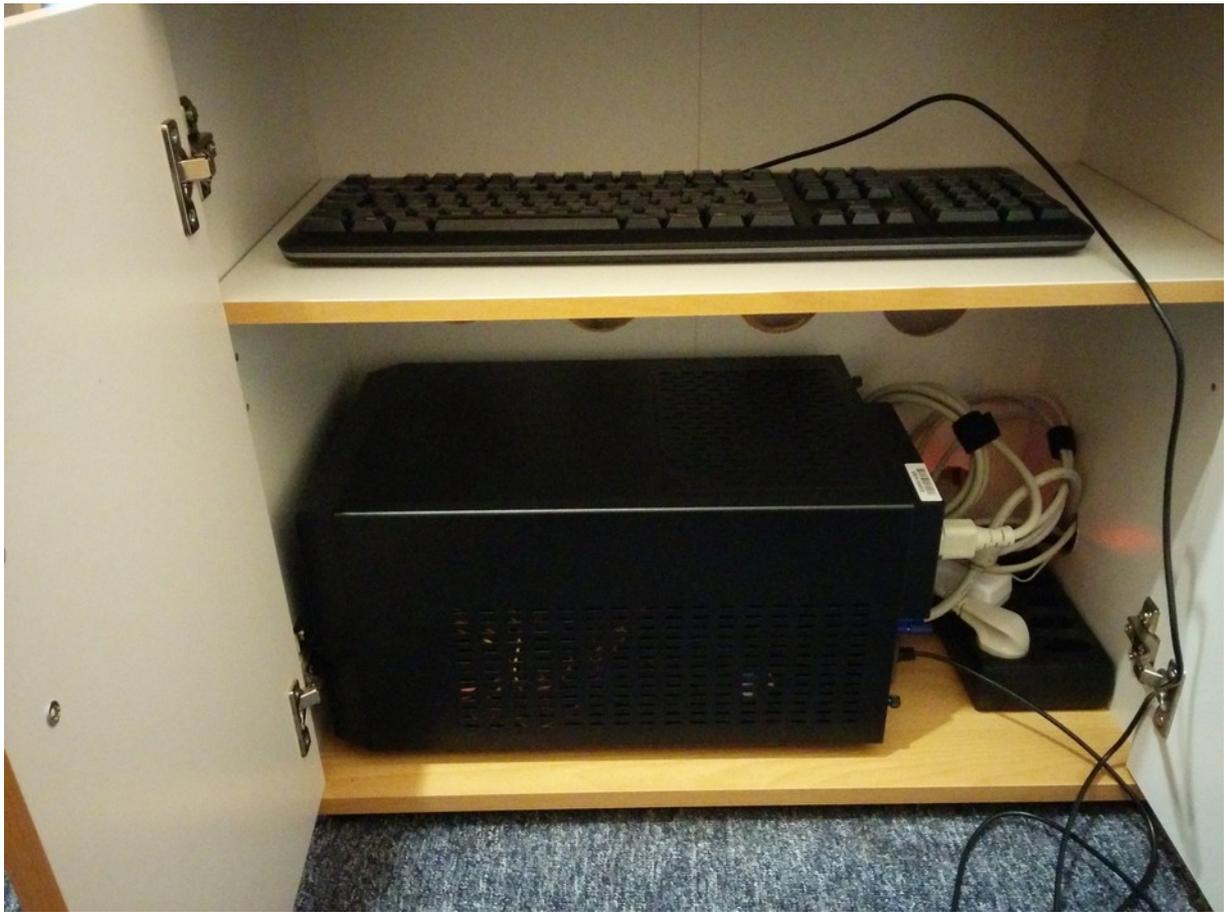
Pictures from system and the intel Card



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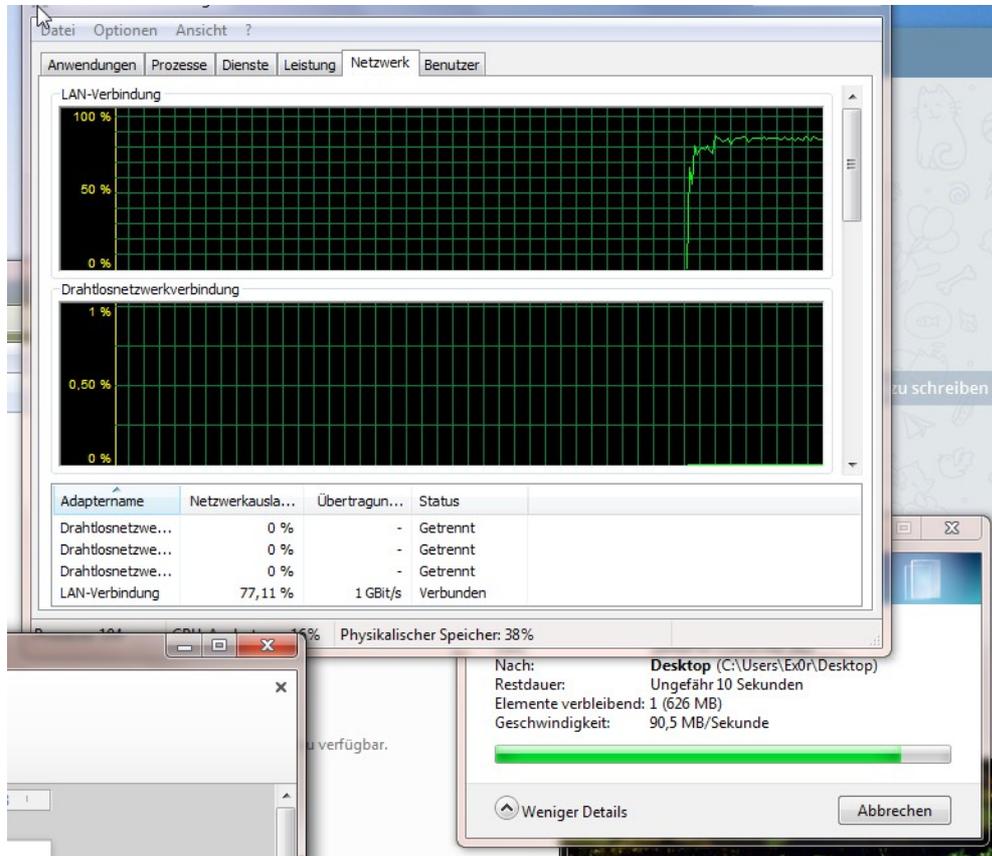


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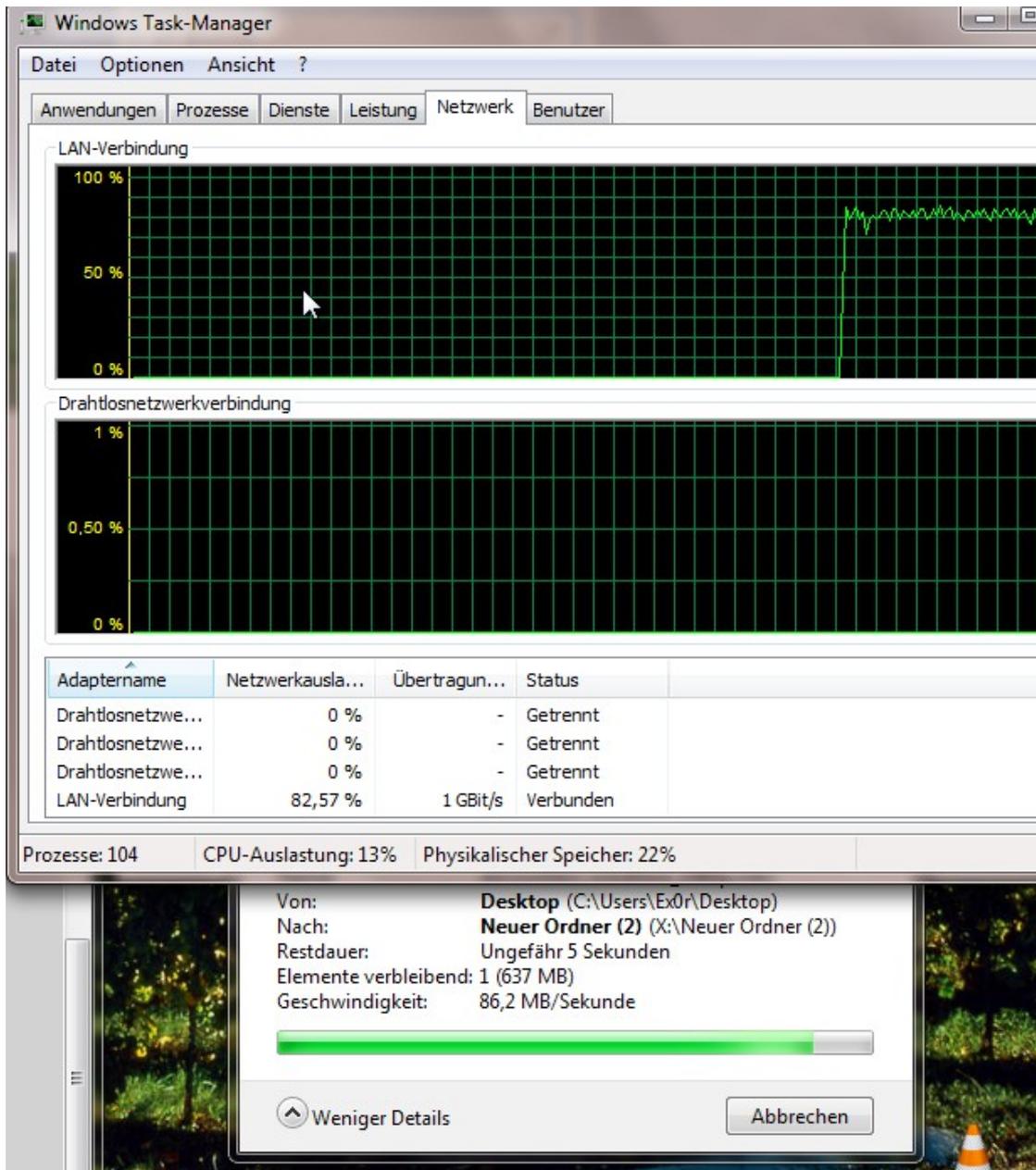
NAS to Thinkpad, 6.18GB mkv



I always tried to take a screenshot at the 10 seconds mark. What we see here is a very good score (lets say 90MB/s) with the realtek Chipset. So lets test the other direction:
Same File

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Thinkpad to NAS:

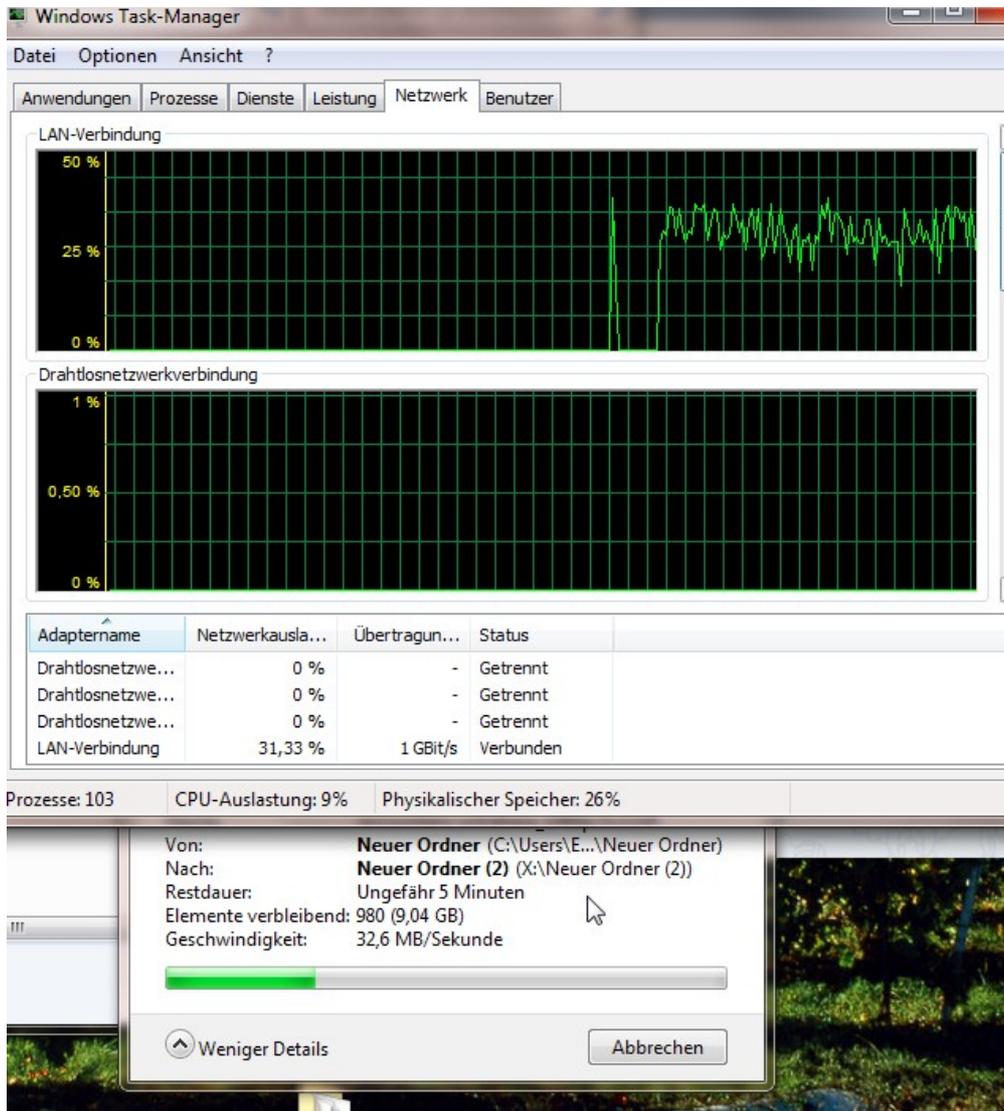


Well...again...very good. A network card load up to 80% with a freeBSD based system is far more than we could expect from such a cheap system on a chip (SOC).

Now some harder tasks...

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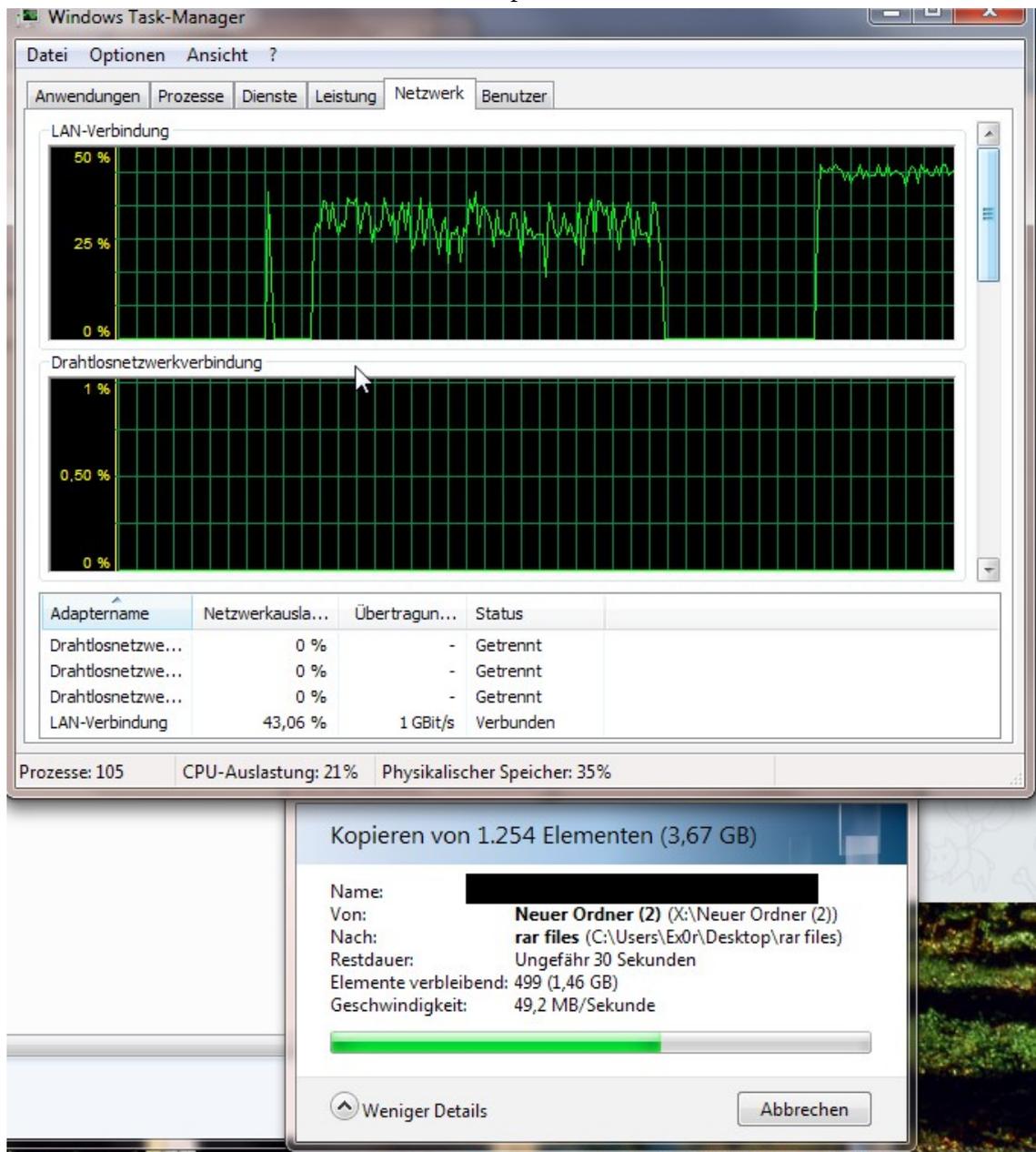
Thinkpad to NAS: 3MB Files:



Ca. 30 to 40% Load and ca. 30MB/s. Again: Don't blame Realtek for this. Windows' filesystems simply doesn't like smalls files and wants to check all of them. Tested with hundreds of 3MB 7z Files.

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NAS to Thinkpad 3M Files:



Well...this was a bit surprising. A lot faster then the other way round.

An now all the tests with the Intel Nic. Realtek deactivated in UEFI

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Thinkpad to NAS:

The screenshot shows the Windows Task Manager 'Netzwerk' (Network) tab. It displays two graphs: 'LAN-Verbindung' (LAN connection) and 'Drahtlosnetzwerkverbindung' (Wireless network connection). The LAN graph shows a green line fluctuating between 0% and 100% usage, with a sharp spike to 100% at the end. The wireless graph shows 0% usage. Below the graphs is a table of network adapters:

Adaptername	Netzwerkausla...	Übertragun...	Status
Drahtlosnetze...	0 %	-	Getrennt
Drahtlosnetze...	0 %	-	Getrennt
Drahtlosnetze...	0 %	-	Getrennt
LAN-Verbindung	85,15 %	1 GBit/s	Verbunden

At the bottom of the Task Manager window, system statistics are shown: Prozesse: 106, CPU-Auslastung: 13%, Physikalischer Speicher: 28%.

Overlaid on the bottom of the Task Manager is a file transfer progress window. It shows the following details:

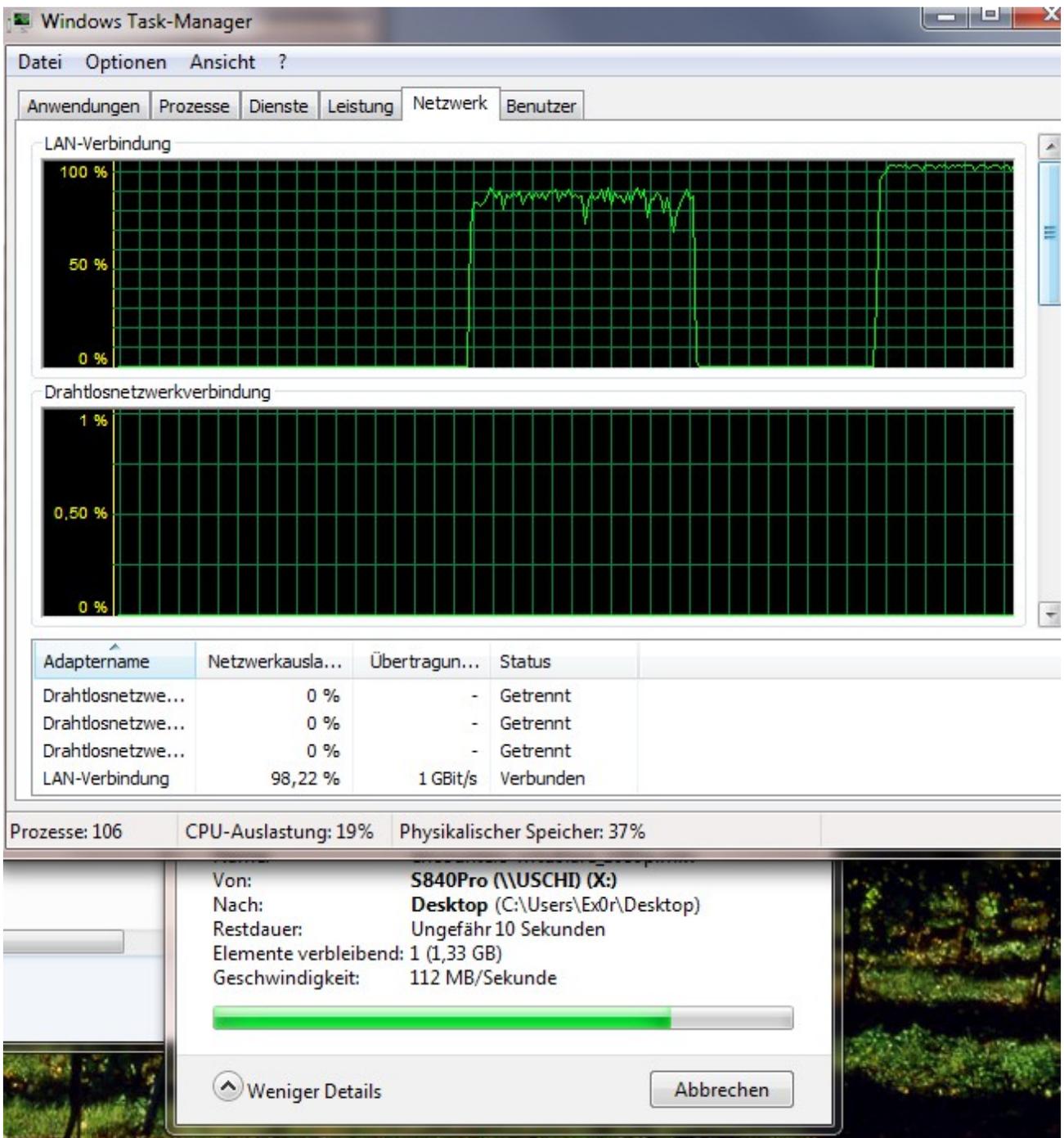
- Von: [Redacted]
- Nach: S840Pro (\\USCHI) (X:)
- Restdauer: Ungefähr 10 Sekunden
- Elemente verbleibend: 1 (953 MB)
- Geschwindigkeit: 92,7 MB/Sekunde

A green progress bar is visible, and buttons for 'Weniger Details' and 'Abbrechen' are at the bottom.

93MB/s vs 86MB/s well not bad, but not that much..

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NAS to Thinkpad (wow):



Pooof! 112MB/s vs 90MB/s. Any Questions? We clearly maxed out gigabit here. Every big file pushes the nic to their limit (99.5%).

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I noticed great improvements on smaller files, too:

Thinkpad to Nas 3M Files:

The screenshot shows the Windows Task Manager Network tab. It features two graphs: 'LAN-Verbindung' (LAN connection) and 'Drahtlosnetzwerkverbindung' (Wireless network connection). The LAN graph shows a green line fluctuating between 0% and 100% on a grid. Below the graphs is a table of network adapters.

Adaptername	Netzwerkausla...	Übertragun...	Status
Drahtlosnetze...	0 %	-	Getrennt
Drahtlosnetze...	0 %	-	Getrennt
Drahtlosnetze...	0 %	-	Getrennt
LAN-Verbindung	36,87 %	1 GBit/s	Verbunden

Below the table, the Task Manager status bar shows: Prozesse: 106, CPU-Auslastung: 14%, Physikalischer Speicher: 29%.

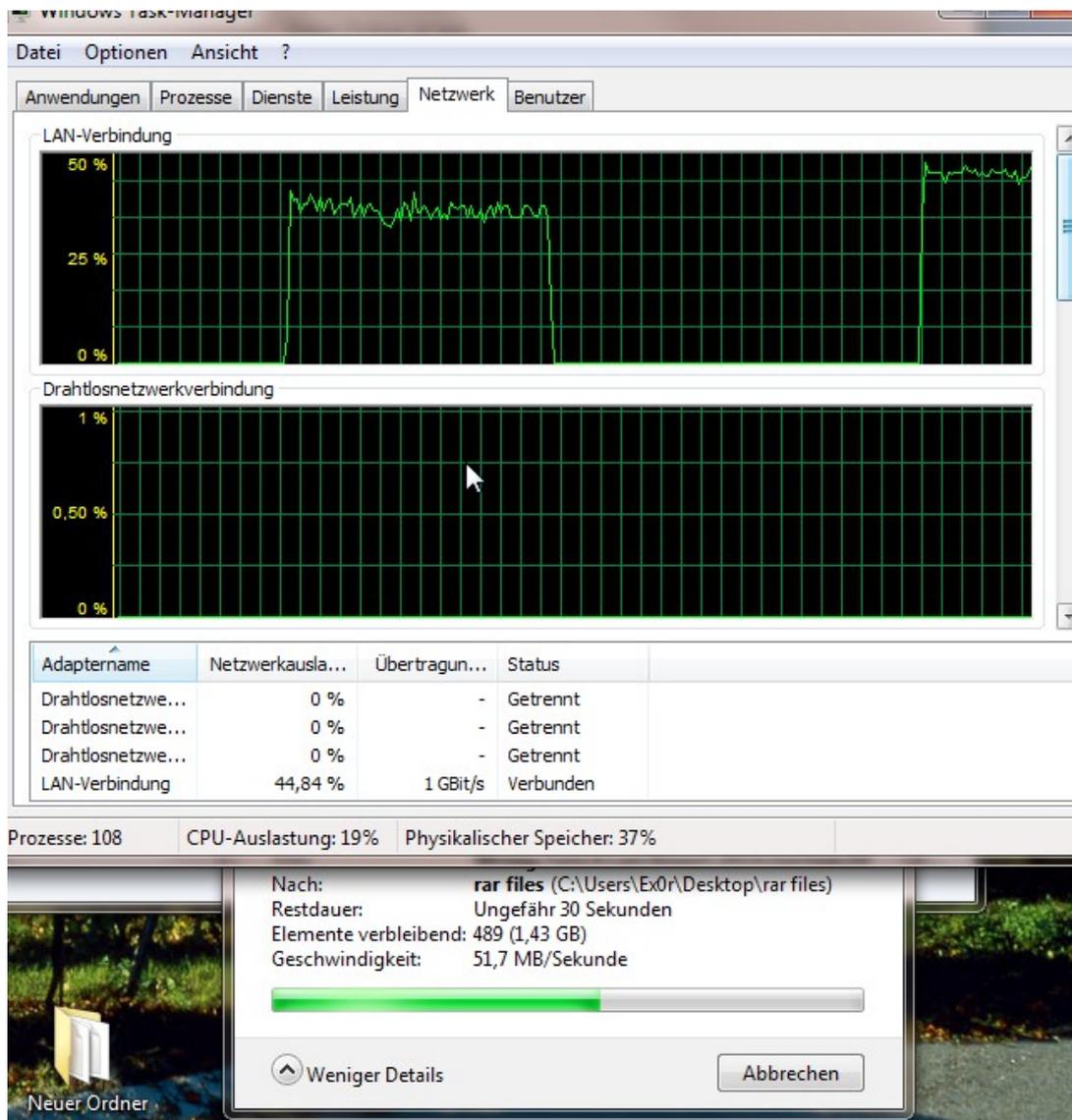
A progress dialog is overlaid on the bottom right, displaying transfer statistics:

- Restdauer: Ungefähr 60 Sekunden
- Elemente verbleibend: 710 (2,07 GB)
- Geschwindigkeit: 42,1 MB/Sekunde

The dialog includes a green progress bar and buttons for 'Weniger Details' and 'Abbrechen'.

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NAS to Thinkpad 3M Files:



Conclusion

If you are a standard home user and don't want to „waste“ 24€ don't change your running system. But if you are driving a freenas system with enough processor power to max out gigabit give it a try. In **my** system the Intel card performs outstanding well. If you hope to improve your 30MB/s FreeNAS System to 100MB/s: Forget it. But if you are a sys admin and have to deal with some sereous traffic and/or IOPs than intel is your friend.