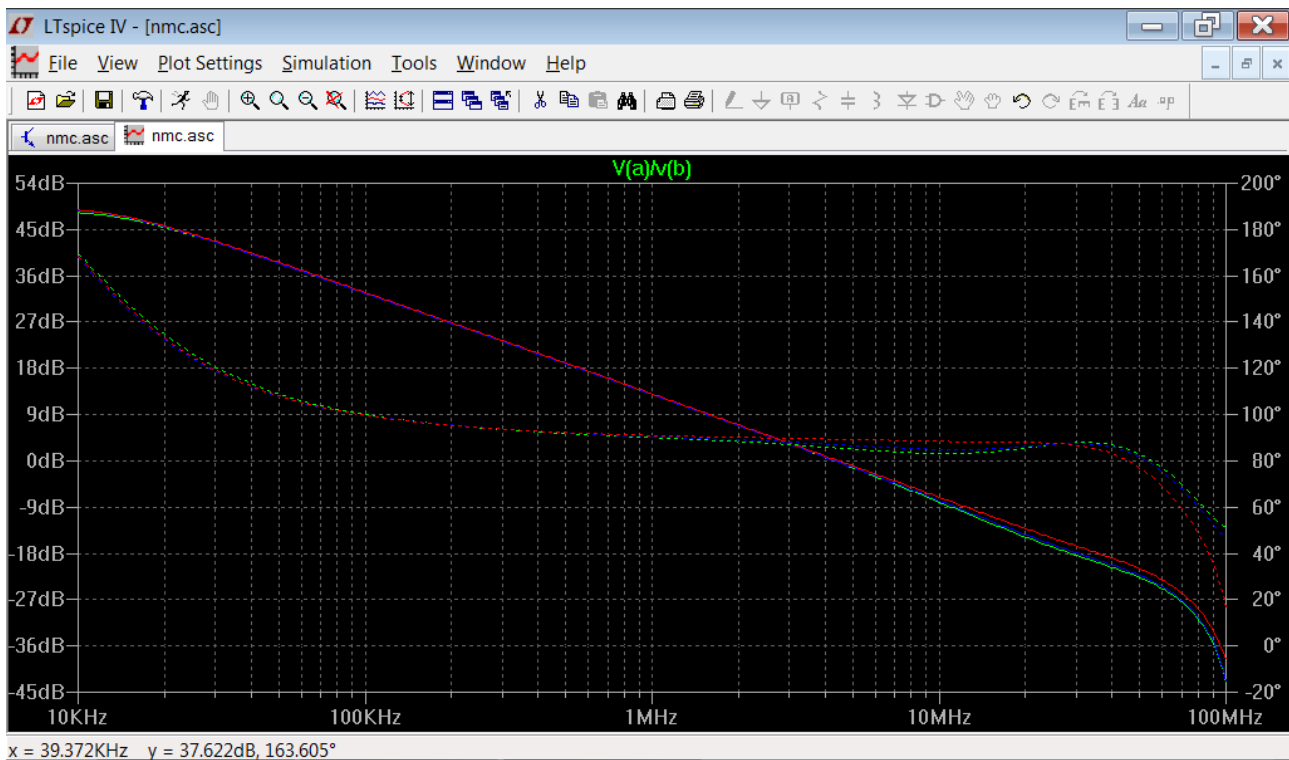
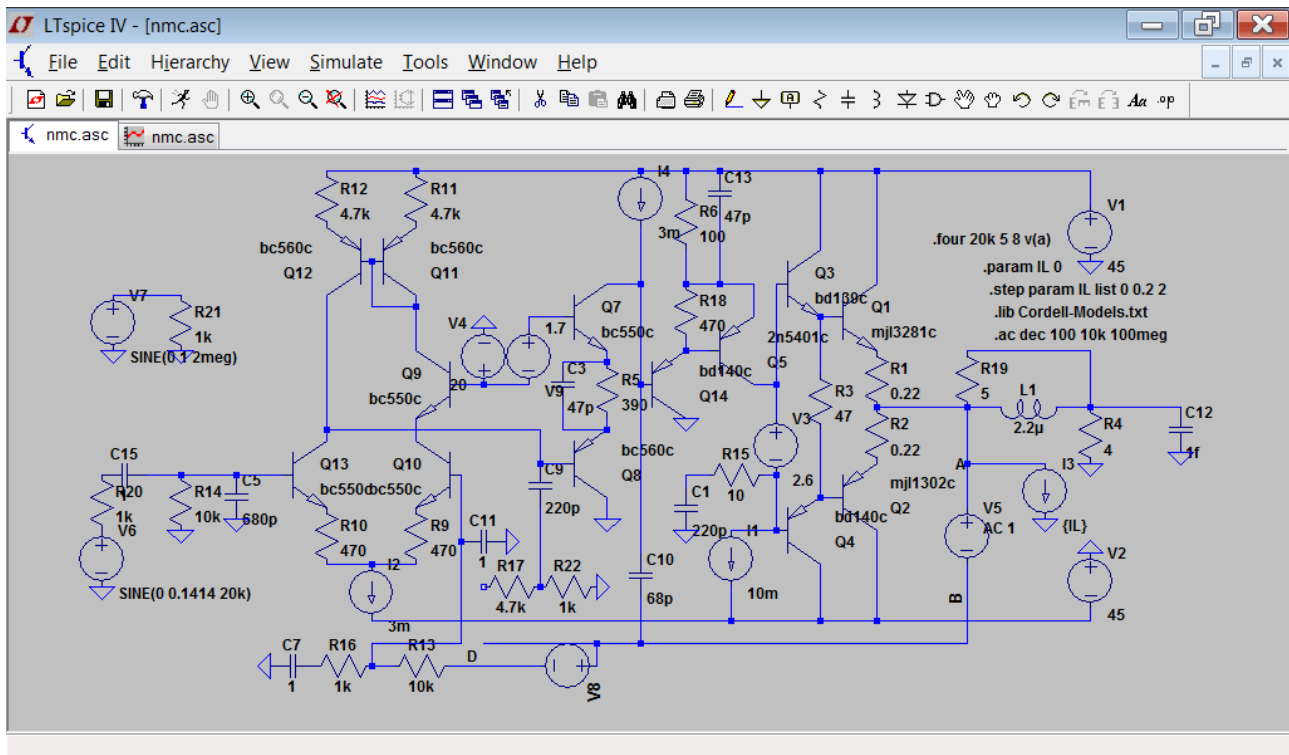


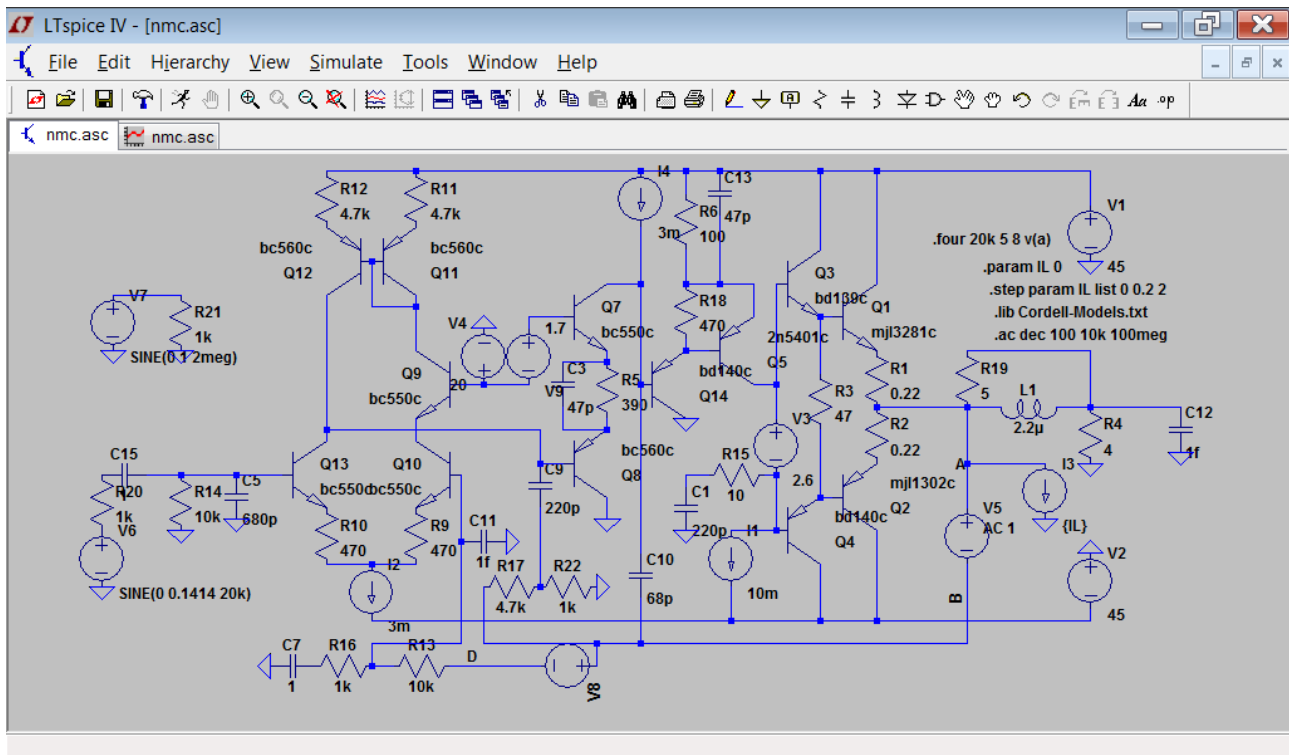
NMC variant with total ULGF around 5 MHz

With combination of VAS degeneration and shunt compensation at VAS output, the ULGF around VAS/OPS alone has been reduced to 4 Mhz.



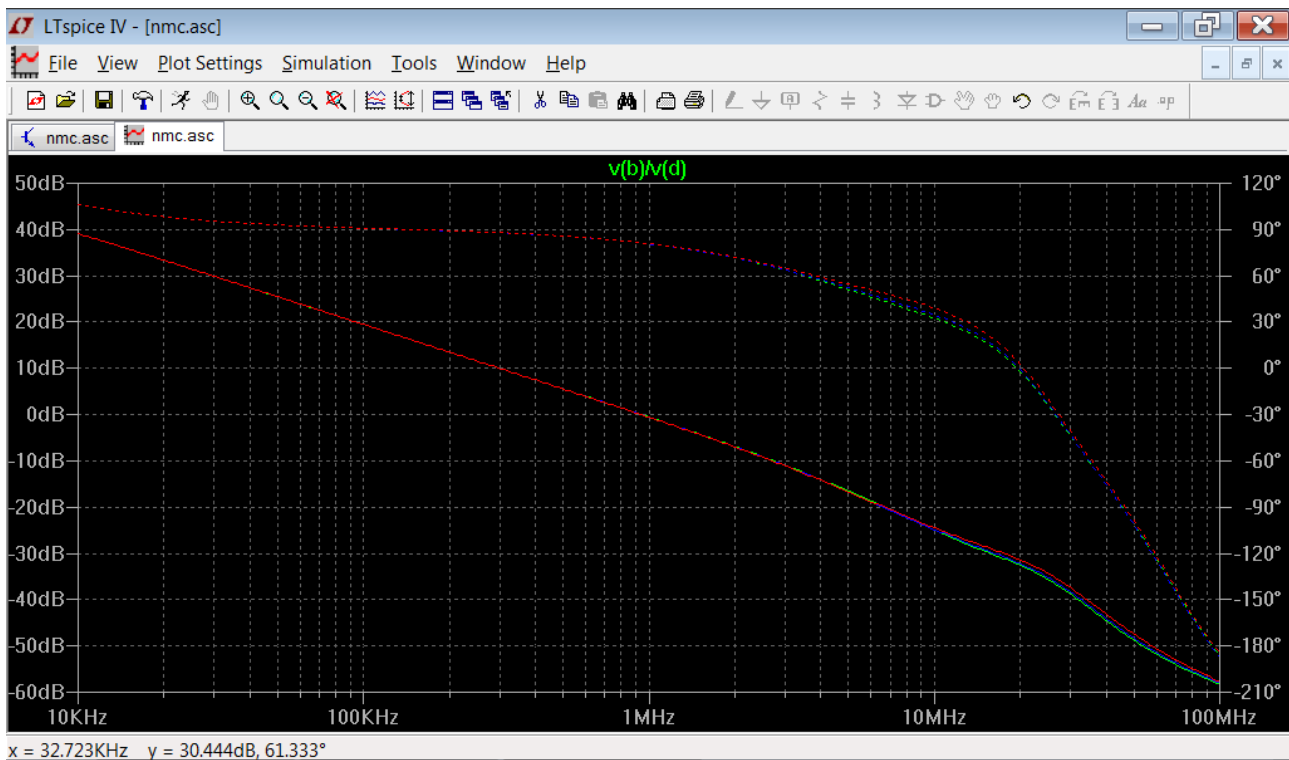
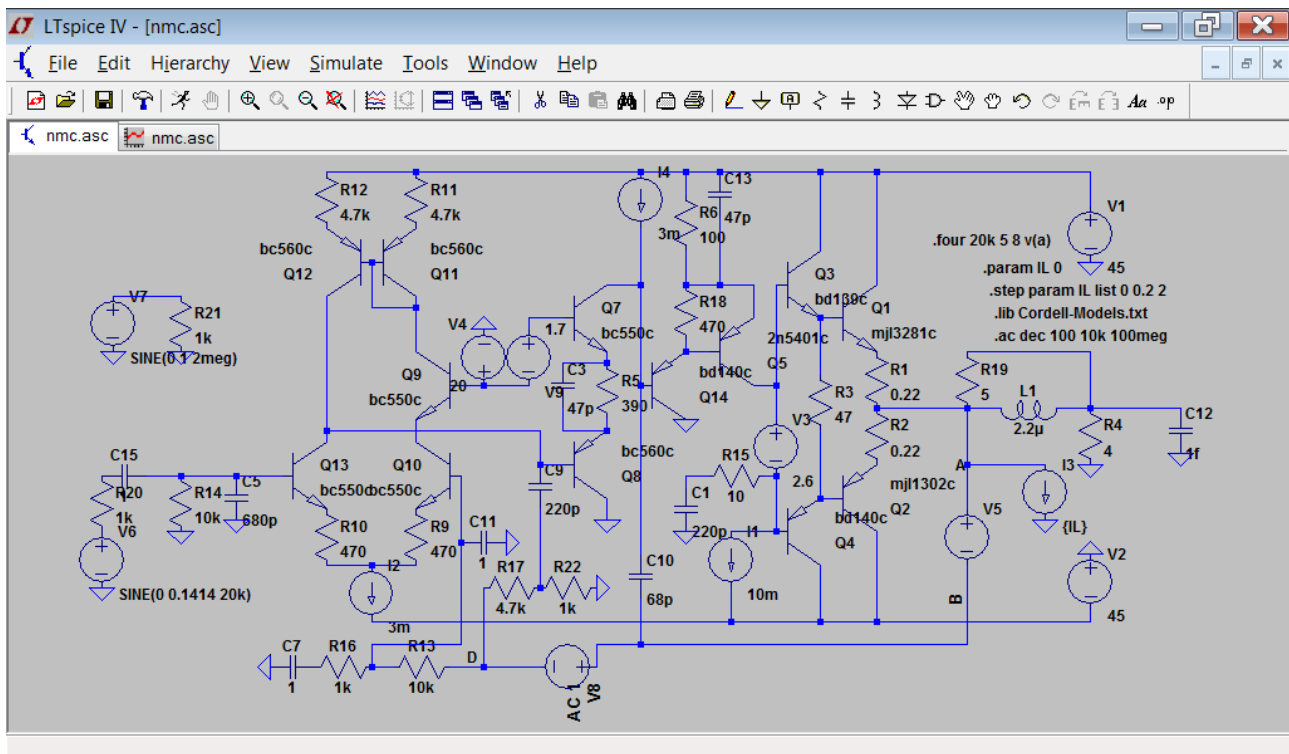
Total NFB around OPS with all loops active:

The „overshoot“ of phase margin above 10 Mhz mainly stems from the wish of good margins in the intermediate loop (C3 around Rush degeneration resistor R5), see below



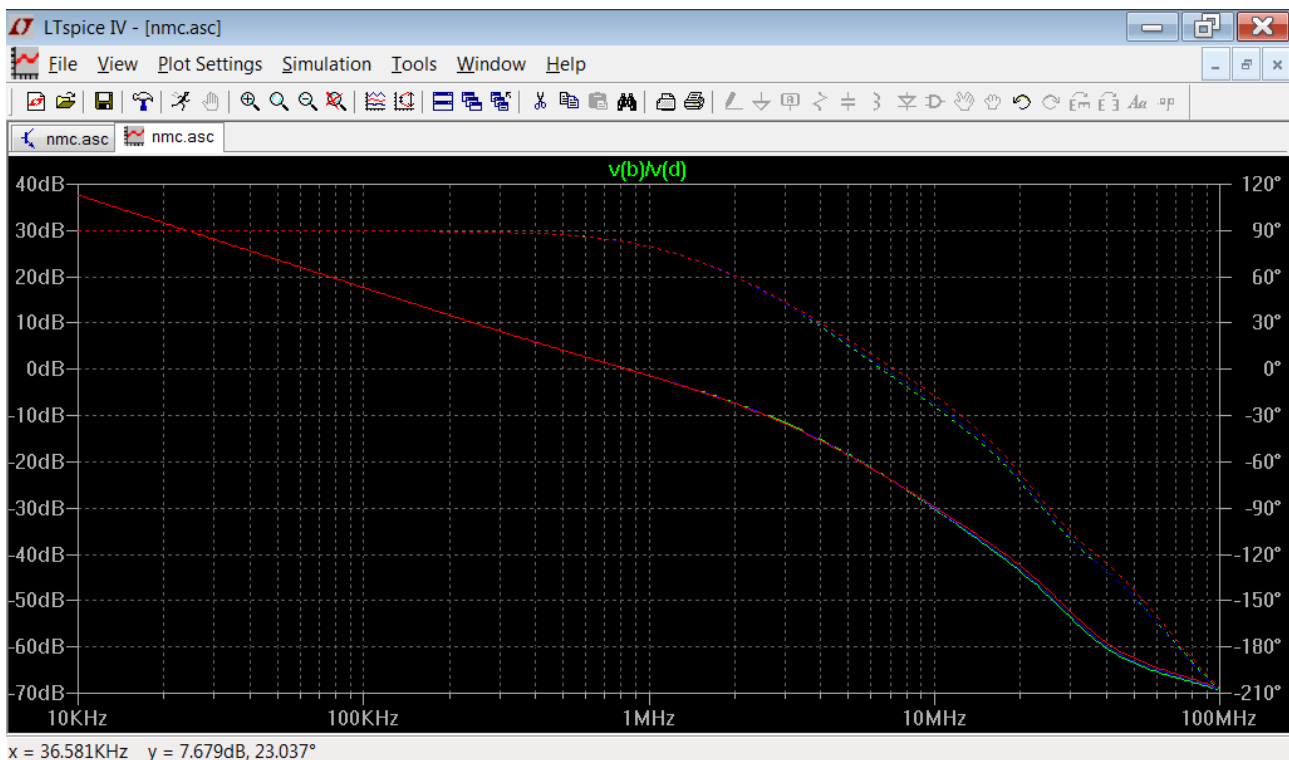
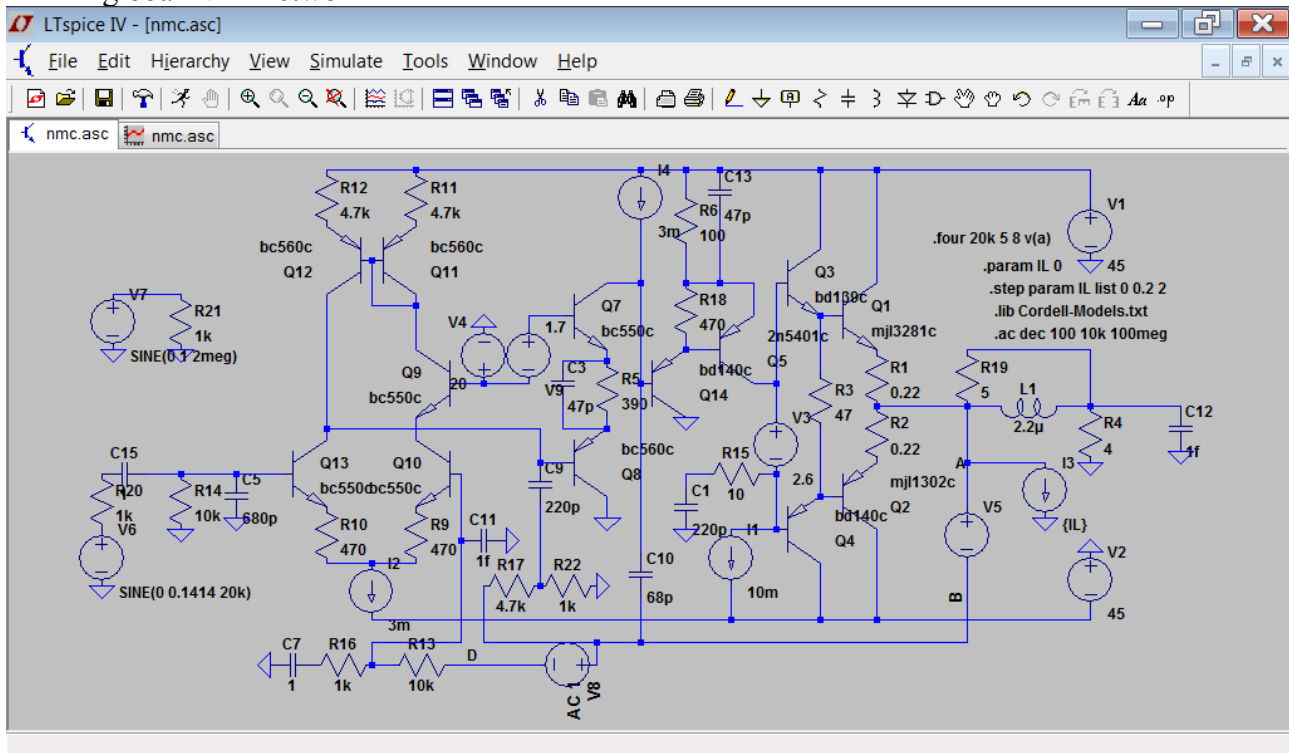
Intermediate loop through Rush stage, global loop disengaged:

- ULGF around 1 Mhz
- the „zero resistor“ for compensating the finite innermost ULGF here is completely established by the voltage divider, $1k \parallel 4k7$



Global loop:

- IPS has been degenerated a bit more compared to Cherry's example
- ULGF around 850 kHz
- Still, margins could be a bit better. But we did not want to apply lead compensation in the global NFB network



Simulated THD values

- 1 V rms into 4 Ohm, 20 kHz (up to fifth harmonic): 0.6 ppm
- 10 V: 1.2 ppm