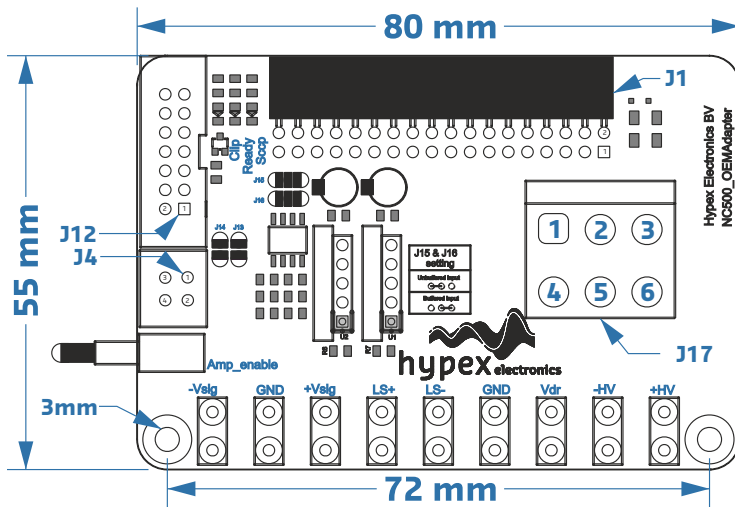


NC500 OEM evaluation board



Highlights

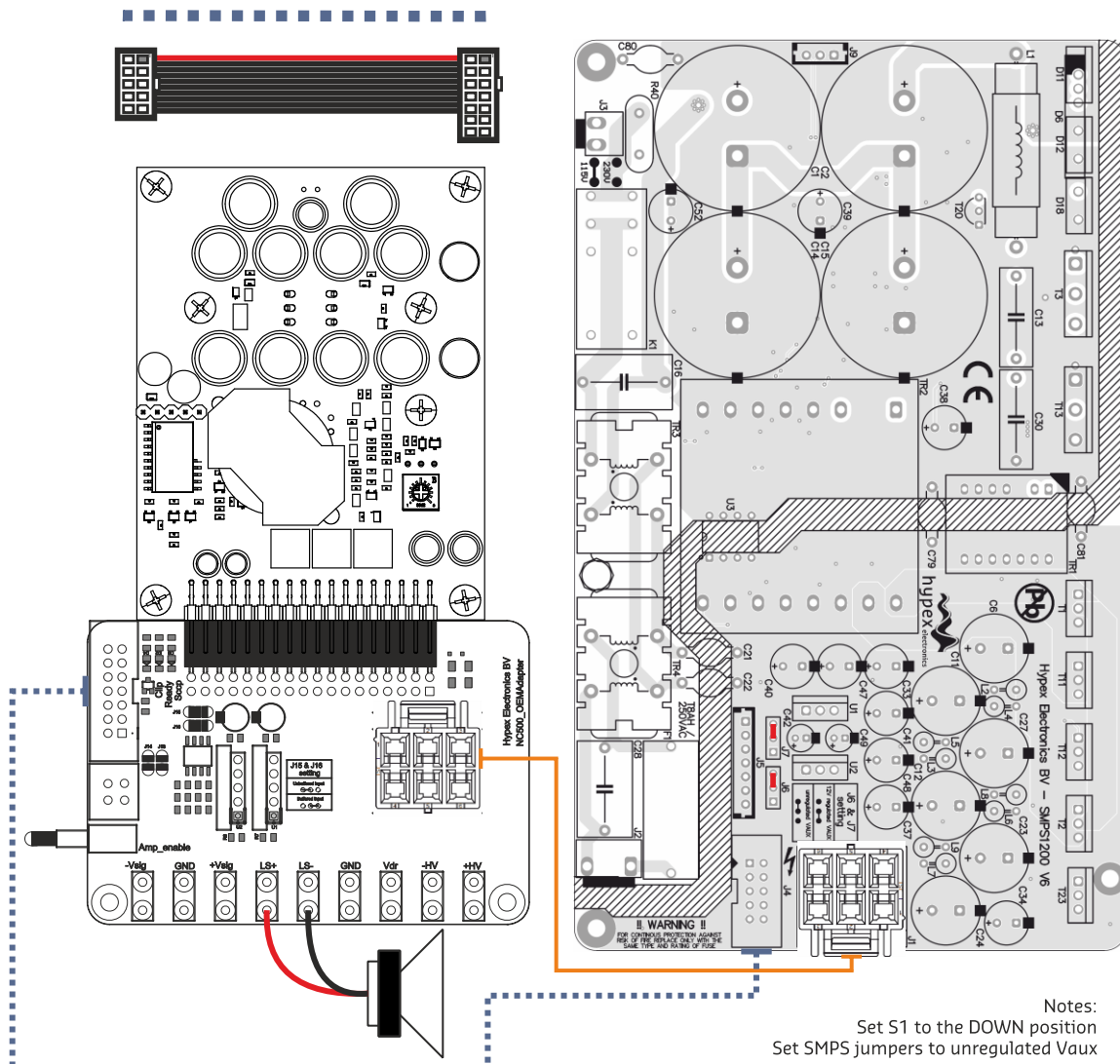
- Allows for easy evaluation of the NC500 OEM amplifier
- On board buffer
- On board regulators / HxR-ready

Introduction

- This board is specifically designed to allow for easy evaluation of the NC500 OEM NCORE module. A selectable, on board buffer stage of 14 dB is implemented.

1.1 Typical application

For detailed information please refer to the datasheets of the NC500 OEM and SMPS1200.



Please make sure you always download the latest datasheet from our website.

1.2 On-board regulators

The local +/-15V regulators create the buffer/modulator stage supply voltages from the unregulated Vaux.

Parameter	Conditions	Symbol	Min	Typ	Max	Unit	Note
Vsig / Vaux		Vaux	18	22	15	Vdc	
+Isig / Iaux+	Current draw buffer stage only	Ibuf+		18	60	mA	
-Isig / Iaux-	Current draw buffer stage only	Ibuf-		15	50	mA	

1.3 On-board LED indicators

This adapter board features three LED indicators:

LED D2: Amp Ready (only in HW mode)

LED D3: SCCP, Overcurrent indicator

LED D4: Clip indicator.

Note: If the 'UcD/NCore Interface' is connected to an SMPS, pin 9 is connected to ground on the SMPS and therefore the SCCP LED is lit continuously.

1.4 NC500 OEM interface header

J1 Pinout can be found in the NC500 OEM datasheet.

1.5 NCore audio signal interface

Pin	Direction	Function	Electrically connected to
J4.1	Input	Non-inverting audio input (hot)	NC500 J3.29 (buffer bypassed) J12.7 (J13/14 soldered)
J4.2	Input	Inverting audio input (cold)	NC500 J3.30 (buffer bypassed) J12.8 (J13/14 soldered)
J4.3	Input	nAmpOn	NC500 J3.32 Adapter J12.6 and S1 (set S1 to off)
J4.4	-	GND	GND

Connector type equivalent: Molex Micro-Fit 3.0™ 4P 43045-0412

1.6 UcD/NCore Interface

Pin	Direction	Function	Electrically connected to
J12.1	Input	Vaux+	Faston +VSIG
J12.2	Input	Vaux-	Faston -VSIG
J12.3	-	GND	GND
J12.4	Output	Ready indicator	NC500 J3.35
J12.5	Output	Clipping indicator	NC500 J3.33
J12.6	Input	nAmpOn	NC500 J3.32 / Adapter J4.3 and S1 (set S1 to off)
J12.7	Input	Non-inverting audio input (hot)	NC500 J3.29 (buffer bypassed) / J4.1 (J13/14 soldered)
J12.8	Input	Inverting audio input (cold)	NC500 J3.30 (buffer bypassed) / J4.2 (J13/14 soldered)
J12.9	Output	Overcurrent indicator	NC500 J3.34
J12.10	Output	DC Error	NC500 J3.36
J12.11	Input	Control mode	NC500 J3.31
J12.12	-	Reserved	Do not connect
J12.13	Output	Current monitor	NC500 J3.28
J12.14	Output	Current monitor	GND

Connector type equivalent: T821110A1S100CEU

Contact material: Brass, gold flash over nickel

1.7 SMPS1200 Supply interface

Pin	Direction	Function	Remarks
J17.1	Input	V _{DR+}	Positive bootstrap driver voltage Electrically connected to Faston Vdr / NC500 J3.11
J17.2	Input	HV+	Positive supply rail Electrically connected to Faston +HV / NC500 J3.1-2
J17.3	-	GND	GND
J17.4	Input	V _{DR-}	Negative bootstrap driver voltage Electrically connected to Faston -HV / J17.5
J17.5	Input	HV-	Negative supply rail Electrically connected to Faston -HV / NC500 J3.9-10
J17.6	-	GND	GND

Connector type equivalent: B06P-VL.

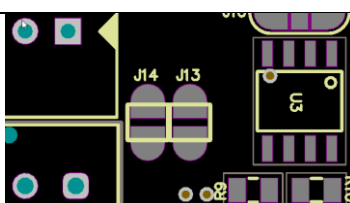
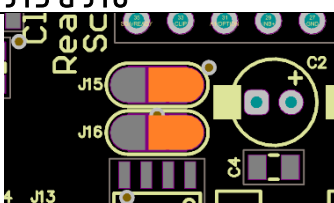
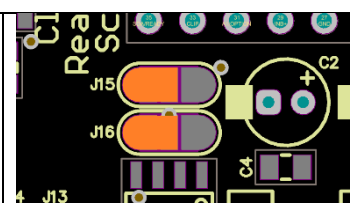
Matching cable part: VLP-06V.

1.8 Faston tabs

Tab	Direction	Function	Electrically connected to
-Vsig	Input	Vaux-	J12.2 Vaux-
GND	-	GND	
+Vsig	Input	Vaux+	J12.1 Vaux+
LS+	Output	Hot speaker terminal	NC500 J3.19-24, FBh connected at Faston
LS-	Output	Cold speaker terminal	NC500 J3.13-17, FBc connected at Faston
GND	-	GND	
Vdr	Input	V _{DR}	NC500 J3.11
-HV	Input	HV-	NC500 J3.9-10
+HV	Input	HV+	NC500 J3.1-2

Connector type equivalent: 6,3x0,8 mm FASTON® tab

1.9 Jumper settings

J13 & J14	J15 & J16	
		
Secondary audio input select	Buffered input	Unbuffered input
Use default J4 input for maximum performance. J13/14 open. When secondary audio input is used, solder J13/14 to connect pins 1/2 of J4 to pins 7/8 of J12	This adapter has an on-board buffer with a gain of 14.6dB Select buffered (default) or unbuffered audio input with solder jumpers J15 and J16.	

1.10 Switch S1

On/off control. When neither pin J12.6 nor J4.3 (nAmpOn) is used, the on/off state can be controlled using S1. Set S1 to off (down position) when the nAmpOn is controlled using J4 or J12.

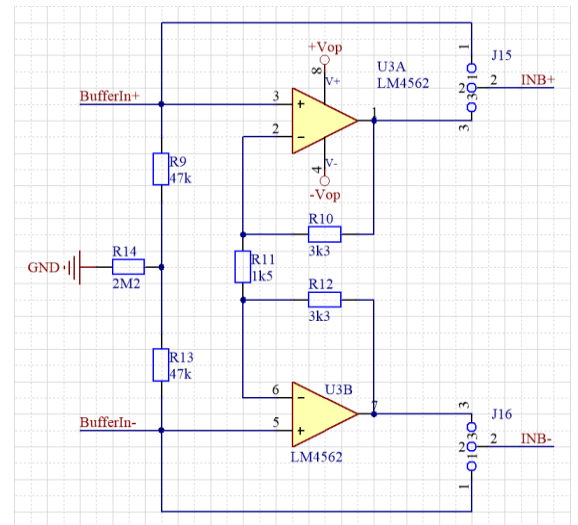
1.11 Input buffer gain

The input buffer has a gain of approximately 14 dB.
 This gain is set by R10, R12 (Rf) and R11 (Rg).
 The gain (dB) can be calculated using the following formula:

$$20 \text{ Log}(1 + \frac{2 * Rf}{Rg})$$

Where Rf = 3k3 and Rg = 1k5. To change the input buffer to unity gain, R11 should be removed.

For more information about voltage gain refer to our application note "Voltage Gain of the UcD Modules".



2 Revisions

Document Revision	PCB Version	Change log	Date
01	NC500 OEM Adapter V0.1		10.05.2016
02	NC500 OEM Adapter V0.1	Table 1.4/1.5/1.7 corrected	Nov. 2021

3 Disclaimer

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