Hypex Electronics BV
Kattegat 8
9723 JP Groningen, The Netherlands
+31 50 526 4993
sales@hypex.nl
www.hypex.nl

Digital Loudspeaker Cross-over Platform

Highlights

- Fully user customised filtering
- Field updatable firmware
- USB audio
- Dimensions only: 115mm x 105mm x 32.5mm
- Weight: 175g

Features

- Compact design
- Personal Computer controlled
- Control board with IR receiver for remote control, LCD display and buttons
- Link communication with midi (only with two or more modules)
- Input sample rates up to 192kHz
- Analogue and digital inputs
- Digital balanced audio loop-through
- Low-jitter discrete clock oscillator
- Balanced audio in and out
- Six channel active filtering
- Fully user-configurable filters
- Firmware update by USB
- Separate Clock and Data Paths
- Six user configurable analogue outputs
- Outputs permit direct interface with buffered UcD™ ST and HG power amplifiers
- Fully user customised filtering
- Analogue input gain trim
- 9 local regulators
- IIR & FIR filtering
- 96kHz sampling rate
- Pre amplifier version with four analogue balanced inputs
- Stand-by modus
- On board JST output connectors
- Connector for external Led.

Hypex Electronics BV
Kattegat 8
9723 JP Groningen, The Netherlands
+31 50 526 4993
sales@hypex.nl
www.hypex.nl

System information

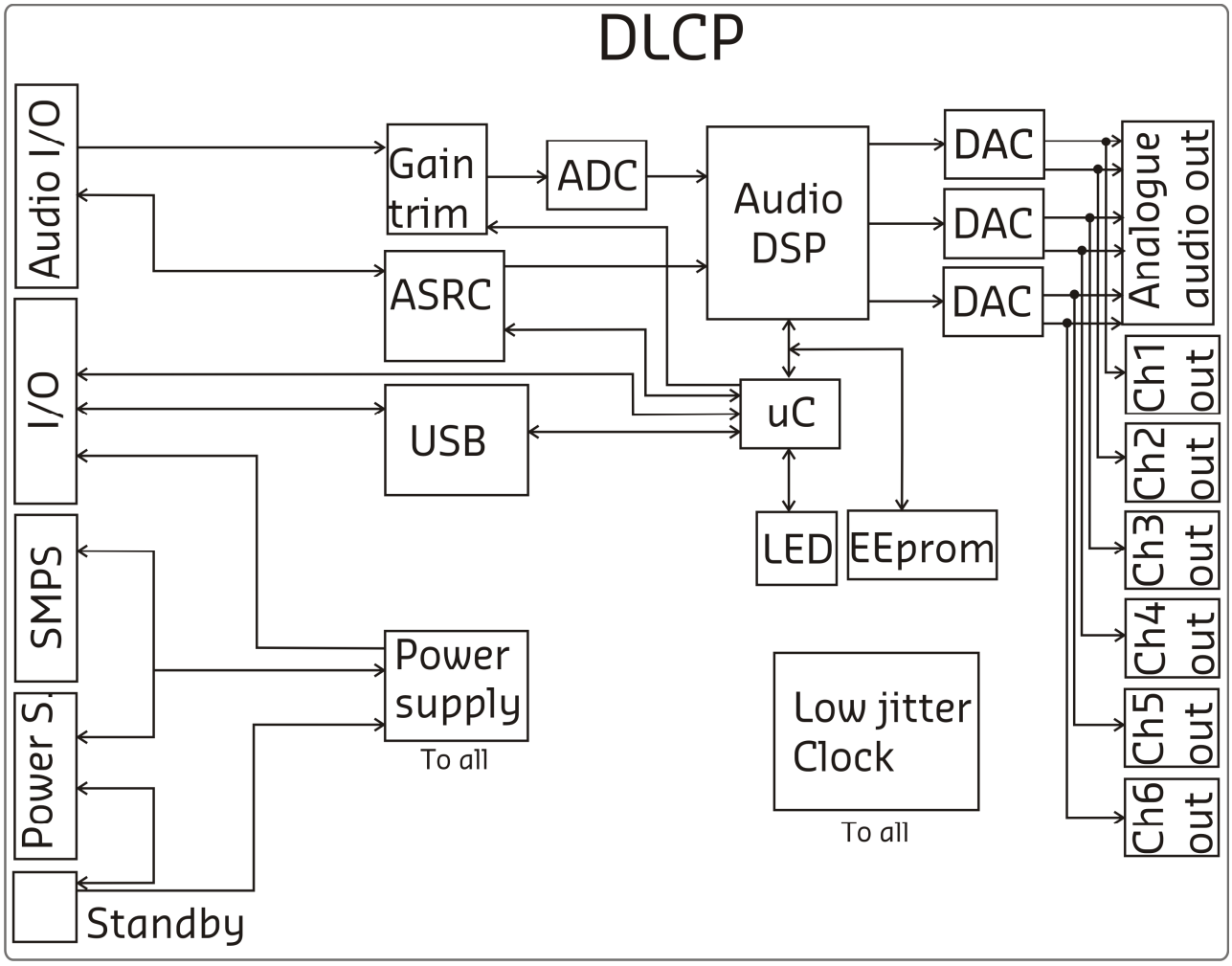


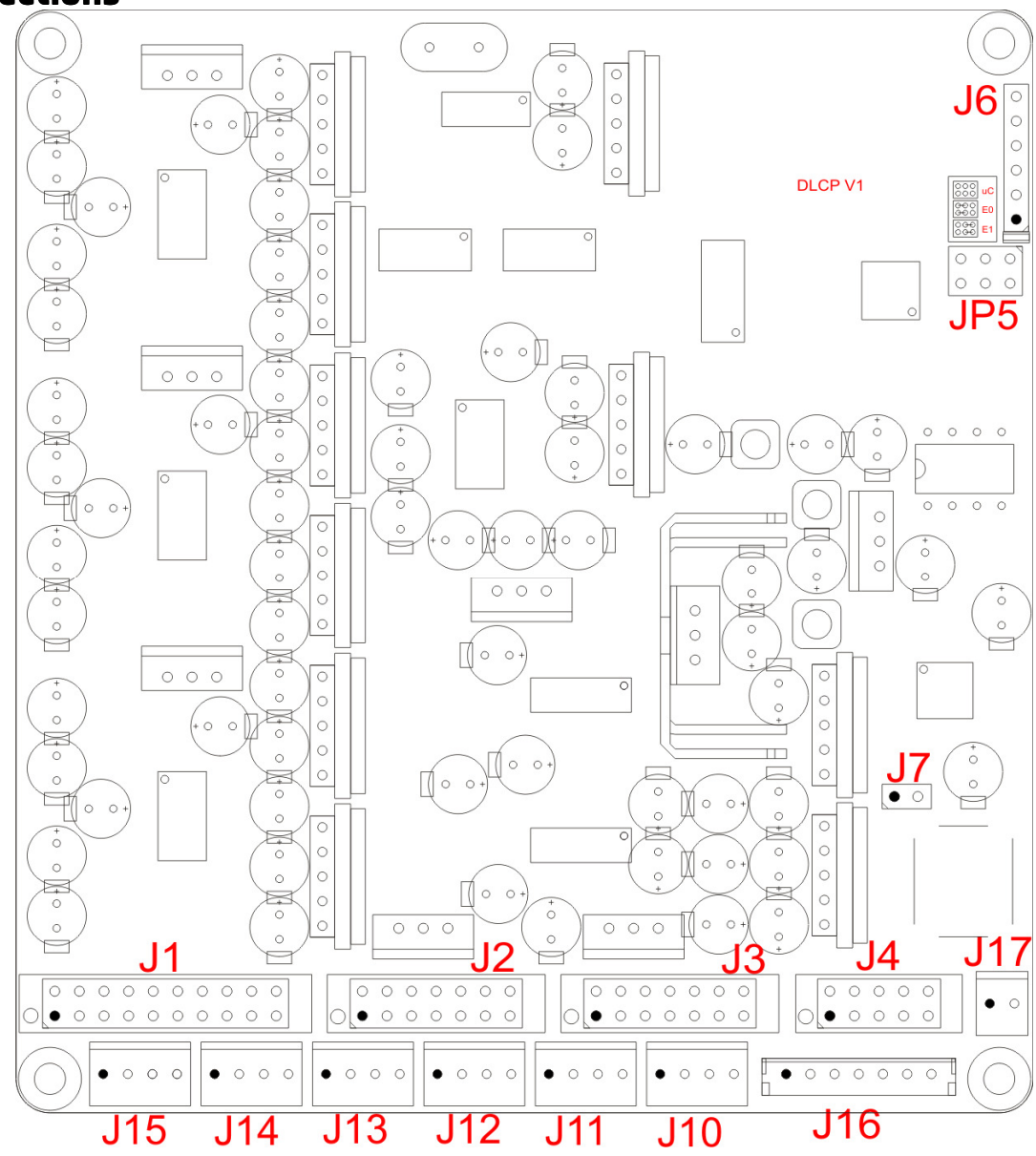
Figure 1: Block diagram

Description

The "DLCP" is a complete hardware/firmware platform for digitally filtered and corrected active multi-way loudspeakers. It can be used as an digital pre amplifier when the optional input board with relays is bought or used as an active filter.
With the optional remote board, you can change the volume, input, power without an USB connection. It also contains a LCD display and IR receiver, for a remote controller. This remote board can be connected to the input board of the DLCP with only one CAT5 cable with RJ45 connectors.
Digital response correction allows significant extra degrees of freedom in the acoustic design of a loudspeaker. Driver parameters can be selected for best efficiency and distortion instead of electrical damping, and the cabinet can now be fully optimized for radiation pattern.
Figure 1 shows the audio path of the DLCP. The module has six JST connector audio outputs, which can be connected to the Hypex UCD ST and UCD HG, buffered modules.
The supply voltage can be provided by a Switched Mode Power Supply, like the Hypex SMPS400. There is even a connector for a different supply.
A PC can control the DLCP through the USB port. This connection is used to upload the configuration and filter settings, USB-audio can also be send thru the same cable. It will also be possible to update the firmware through USB. All signal processing, including volume control, is done using the on-board DSP (digital signal processor). With an CAT5 cable with RJ45 connectors, many DLCP's can be connected together and operate with only one controller board.

Hypex Electronics BV
Kattegat 8
9723 JP Groningen, The Netherlands
+31 50 526 4993
sales@hypex.nl
www.hypex.nl

Connections



Overview of the connectors on the DLCP

Name	Function
J1	Analogue audio output header
J2	Digital/Analogue audio in/output header
J3	I/O connector (USB,Midi,Relay)
J4	Power supply connector (not needed when connected to Hypex SMPS with J16)
J17	Standby connector
J15	Analogue audio output ch1 JST connector
J14	Analogue audio output ch2 JST connector
J13	Analogue audio output ch3 JST connector
J12	Analogue audio output ch4 JST connector
J11	Analogue audio output ch5 JST connector
J10	Analogue audio output ch6 JST connector
J16	Power Supply connector Hypex SMPS (not needed when connected to other supply with J4)
J7	LED connector
J6	Microcontroller & DSP programmer connector, not used by user

J2: Analogue/digital audio I/O.
Connector type: 2.54mm pitch dual row 7 pin header

Pin	Type	Function
1	Input	Analogue left positive in
2	Input	Analogue left negative in
3	Input	Analogue right positive in
4	Input	Analogue right negative in
5	-	GND
6	-	GND
7	Input	S/PDIF in
8	Output	S/PDIF out
9	Input	AES positive in
10	Input	AES negative in
11	Output	AES positive out
12	Output	AES negative out
13	-	GND
14	-	GND

J3: I/O USB,midi,relay.
Connector type: 2.54mm pitch dual row 7 pin header

Pin	Type	Function
1	Input	Midi in positive
2	Input	Midi in negative
3	Output	Midi positive out
4	Output	Midi negative out
5	Input/output	USB data positive
6	Input/output	USB data negative
7	Input	USB VCC
8	-	GND
9	Output	Relay supply voltage
10	Output	Relay 1 control
11	Output	Relay 2 control
12	Output	Relay 3 control
13	-	GND
14	Output	Controller board supply voltage

J7: External LED.
Connector type: 2.54mm pitch 2 pin header

Pin	Type	Function
1	Output	Led output (anode)
2	-	GND (cathode)

J15-J10: (Ch1-Ch6) Analogue audio out.
Connector type: 4-pin MOLEX® KK® series

Pin	Type	Function
1	Output	Ch positive out
2	-	GND
3	Output	Ch negative out
4	Output	Amplifier enable

J1: Analogue audio out.
Connector type: 2.54mm pitch dual row 10 pin header

Pin	Type	Function
1	Output	Ch1 positive out
2	Output	Ch1 negative out
3	Output	Ch2 positive out
4	Output	Ch2 negative out
5	-	GND
6	-	GND
7	Output	Ch3 positive out
8	Output	Ch3 negative out
9	Output	Ch4 positive out
10	Output	Ch4 negative out
11	-	GND
12	-	GND
13	Output	Ch5 positive out
14	Output	Ch5 negative out
15	Output	Ch6 positive out
16	Output	Ch6 positive out
17	Output	Amp_enable
18	-	GND
19	Input	UCD positive supply voltage measurement
20	Input	UCD negative supply voltage measurement

J16: Hypex SMPS Power Supply.
Connector type: JST-B7B-EHA

This connector should not be used when J4 is connected to another power supply.

Pin	Type	Function
1	Output	Supply standby
2		Amplifier standby
3	Input	Positive input voltage
4		N.C.
5	-	GND
6		N.C.
7	Input	Negative input voltage

J4: Power Supply.
Connector type: 2.54mm pitch dual row 5 pin header

This connector should not be used when J16 is connected to a Hypex SMPS power supply.

Pin	Type	Function
1	Output	Supply standby
2		Amplifier standby
3	Input	Positive input voltage
4	Input	Negative input voltage
5	-	GND
6	Input	Standby voltage
7		N.C.
8		N.C.
9		N.C.
10		N.C.

J17: Standby.
Connector type: 2-pin MOLEX® KK® series

Pin	Type	Function
1	Input	Standby voltage
2	-	GND