D2AUDIO® WXS600/300

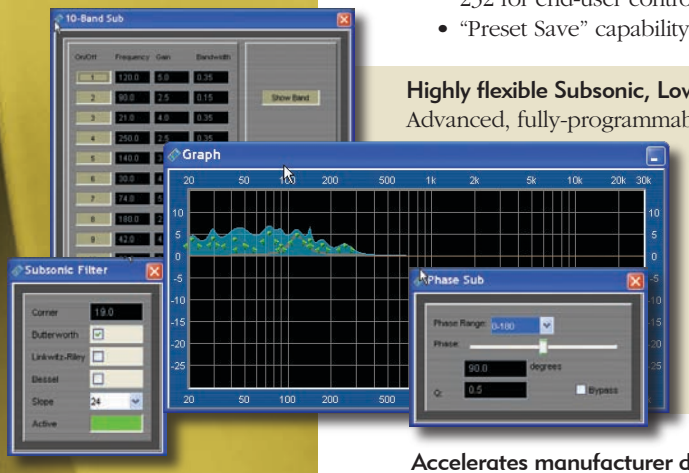
Solutions for Manufactures of Powered Subwoofer Amplifiers

Unprecedented power and sound quality from a DAE-1 enabled digital amplifier reference design

- Up to 600 TRUE Watts per channel into 4Ω for the WXS600
- Up to 300 TRUE Watts per channel into 4Ω for the WXS300
- Peak Power capabilities of 1,000W (WXS600) and 450W (WXS300)
- Designed for use with economical Linear Power Supplies
- <0.5% THD+N (Rated Power, 10Hz-500Hz, 4Ω)
- >100 dB SNR/Dynamic Range (10Hz-500Hz, Unweighted)
- ± 0.5 dB Frequency Response, 10Hz to 500Hz, 4Ω
- ARMC™ (Automatic Room Mode Correction) module feature option (with external microphone) enables end-users to combat Room Modes with the push of a single button

Unparalleled audio processing, power and flexibility for reduced system cost and complexity with optimum performance:

- D2Audio Canvas™ system designer GUI alleviates designer from generating any DSP filter coefficients
- Input Channel Processing: Input Selection, 2x3 Matrix Mixer
- Output Signal Processing: Tone Control, Subsonic Filter and Low-Pass Filter (for Subwoofer channel), High-Pass Filters (for Output channels), 10-Band Parametric EQ (for Subwoofer channel), 3-Band Parametric EQ (for Output Channels), Continuously Variable Digital Phase Control (for Subwoofer channel), Time Delay, Master Volume Control, Loudness Contour, Compressor, and Level Controls
- 2-Wire communications interface enables intelligent control capability via IR/RF remote, Ethernet, USB, or RS-232 for end-user control or for integrated control with AVRs or Pre-Amplifiers
- "Preset Save" capability via integrated EEPROM also allows for last known state to be preserved



Highly flexible Subsonic, Low Pass, and High Pass Filters

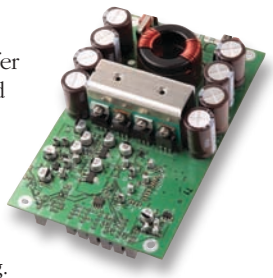
Advanced, fully-programmable active Subsonic, Low-Pass and High-Pass Filters with Butterworth, Bessel, Linkwitz-Riley, and custom options. 6dB, 12dB, 18dB and 24 dB/octave slopes.

Match your subwoofer to a desired frequency and phase response

Up to 10 Bands of Parametric Equalization are at the designer or end-user's fingertips. The designer can use as many or as little bands of parametric EQ he needs to tackle the resononances found in his box or to extend the frequency response. The remaining bands of EQ can be used for "Content EQ" (e.g. - Movie, Jazz, Rock, Classic, etc.) or ARMC. The continuosly variable (0~180°, 0~360°) Digital Phase Control delivers the ultimate for end-user placement.

Accelerates manufacturer design time and agency certification

Complete digital amplifier module with controller, output stages, output filters, and thermal dissipation transfer bar. Designed for compliance with UL and CSA requirements. The WXS600 "Phase I", Evaluation Kit II (available today) includes: Metal Backplate, Linear Power Supply, Input/Control Daughter Card, Bulk Caps on Power Board, Master Volume Control, USB Connection, S/PDIF and Analog Inputs



Module offers digital audio inputs, analog audio inputs, and even digital audio outputs

Imagine being able to move beyond sending an analog signal to your powered subwoofer one day. The WXS600/300 is just waiting for you to connect a S/PDIF or I2S/Left-Justified signal and get the most dynamic range & resolution your subwoofer deserves. You can even offer a complementary high-pass filtered analog output with a simple I2S/Left-Justified connection to a stereo DAC.

Sophisticated graceful protection

Automatic short-circuit recovery. Integrated thermal sensor feedback. Soft-current limiting.

Identical footprint and mechanicals

Since the WXS600 and WXS300 share the exact same thermal dissipation bar and offer identical footprints by design, thus the designer is able to create multiple SKUs offering multiple power levels with an almost identical design.

D2-PS-WXS600-160

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At the heart of the WXS600/300 Reference Design lies the DAE-1

Digital Audio Engine 1 (DAE-1) is the world's first Intelligent Digital Amplifier™, combining the superb audio processing of an on-chip DSP with a powerful adaptive PWM control engine that delivers premium sound. D2Audio's patented IC continually and automatically performs sound optimization and correction on the audio signals the module produces, giving the DAE-1 superior sound, far surpassing other digital amplifiers.

Advanced Sample Rate Converters (SRCs) are used on every channel to deliver the very best audio performance. The combination of adaptive PWM control engines and independent SRCs deliver 55dB better THD+N than competing solutions. The inaccuracies of analog-to-digital conversion and then the digital-to-analog conversion of most systems are avoided. By staying completely in the digital domain, D2Audio's processing and enhancement software adds an additional level of sound quality adjustment, allowing the most discerning listener to tweak their final product to deliver the exact sound they are after. DAE-1 includes specialized audio adjustment tools with an easy to understand graphical interface. With Audio Canvas, simply click, drag and adjust filter profiles to suite your needs.

The all-digital advantage! Imagine the possibilities for powered subwoofer product differentiation

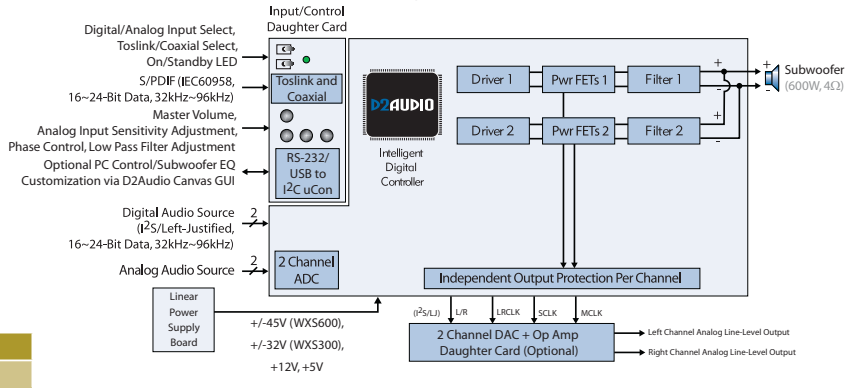
Imagine an AVR or Preamplifier/Processor that is capable of actually controlling the user's Intelligent Digital Subwoofer from the setup screen enabling end-users to control any aspect of the processing inside their digital subwoofer. How about sending a pure digital signal to the subwoofer directly from an AVR or high-end HTiB? Envision an intelligent digital subwoofer that can actually compensate for room modes effectively witbout requiring an expensive room equalization algorithm in the AVR or Audio Processor. D2Audio's ARMC™ (Automatic Room Mode Correction) technology is ready for your next design! D2Audio is ready for to help you on your next generation DSP-based, all-digital, powered subwoofer design *today* with select WXS-series reference design packages.

Convert your passive subwoofer design to an active powered design in half a day

The brand new WXS600/300 "Phase II" Evaluation Kit enables an immediate evaluation of the WXS600 or WXS300 module. It includes both coaxial and Toslink S/PDIF (IEC60958) inputs, analog mono or stereo inputs, Master Volume Control Knob, Crossover Control Knob, Phase Control Knob, ARMC start button, 650VA 110V/60Hz Transformer, Bulk Capacitance, USB 1.1/2.0 (or RS-232) control and customization via the D2Audio Canvas GUI. All you need to supply is your passive subwoofer enclosure and driver that is capable of handling a TRUE 600W/300W of real power.

Reference Design SKU	DAE-1 Part Number, Pin Count	Audio Processing	Output Channels
			Ch 1
D2-WXS060001-05076F	D2-81412-LR, 144-pin	Baseline + ARMC	600W & 300W, 4Ω

WXS600/300 "Phase II" Evaluation Kit II



WXS600/300 "Phase II" Evaluation Kit III includes Backplate, Input Daughter Card, Output Daughter Card, Power Board, Linear Power Supply

Performance

- 600 Watts Continuous into 4Ω (WXS600)
- 1,000 Watts Peak into 3.2Ω (WXS600)
- 300 Watts Continuous into 4Ω (WXS300)
- 450 Watts Peak into 4Ω (WXS300)
- >100 dB SNR
- <0.5 % THD+N
- ±0.5 dB Frequency Response (10Hz to 500Hz, 4Ω)
- 87% Efficient

Audio Processing

- Input Channel
  - Input Selector
  - 2x3 Matrix Mixer
- Output Channel Processing
  - Tone Control
  - Subsonic Filter (Sub)
  - Low-Pass Filter (Sub)
  - High-Pass Filter (L/R Out)
  - 10-Band Parametric EQ (Sub)
  - 3-Band Parametric EQ (L/R Out)
  - Variable Phase Control (Sub)
  - Adjustable Time Delay
  - Master Volume Control
  - Loudness Contour
  - Compression/Limiting
  - Level Controls

Standard Features

- I²S/Left-Justified and S/PDIF Digital Audio Input (32-96kHz, 16-24 bit)
- Stereo Analog Input
- I²S/Left-Justified Digital Audio Output for connection to optional off-board DAC for post-processed line-level output
- Real-time adjustment of all processing features enables subwoofer designers to fine tune their speaker design in real-time
- Advanced Sample Rate Conversion (SRC) on all inputs (digital and analog)
- D2Audio Canvas™ Graphical User Interface (GUI) for System Designers
- Standard 2-wire serial interface and simple software controlled API

Standard Features (cont.)

- Internal EEPROM stores all crossover and Parametric EQ settings allowing for factory on-the-fly programmability of any product via USB interface as well as last-user settings to be stored
- Graceful short-circuit, thermal and over-current fault protection

Advanced Feature Options

- ARMC™ (Automatic Room Mode Correction)

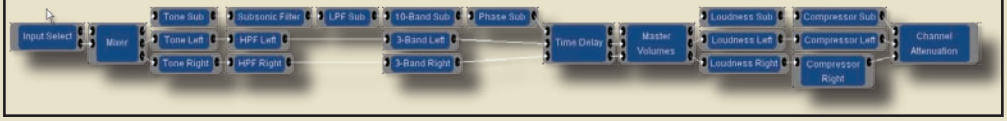
Dimensions

- < 3.5 x 5.7 x 1.9 in

Weight

- 10 oz

Audio Processing Chain as shown in D2Audio Canvas GUI



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