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CREATIVE TECHNOLOGY LTD

Sound Blaster™ X-Fi Xtreme Audio PCIe

Audio Card
Model SB1040 / SB1042

Datasheet

Revision 1.0a
Oct 2007

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Sound Blaster™ X-Fi Xtreme Audio PCIe

Model SB1040 / SB1042

Revision 1.0a

Creative Labs has a long heritage of providing top quality and leading edge audio solutions to the mass PC population with the Sound Blaster® range of both internal and external sound cards and devices.

It all began in 1981 with the founding of Creative Labs, although it would be another eight years before the Sound Blaster® card would be born. There have been many cards along the way; the Sound Blaster® 16 exploded onto the market and with the Sound Blaster® AWE32 everyone realized that a sound card could not only make "sounds" but also music. The Sound Blaster® Live! was a major leap forward bringing multi-channel audio and immense processing power to the audio platform and the Sound Blaster® Audigy® added more power and EAX® ADVANCED HD™ effects while also providing a quality of audio never experienced before.

Along the way Creative has reached out to a whole new audience with our USB Sound Blaster and PCMCIA Sound Blaster range of products. Now comes a truly revolutionary new product. It's so revolutionary that the only comparison we have in terms of the leap forward being made is with Sound Blaster Live! back in 1998!

Sound Blaster X-Fi as a revolutionary platform delivers a whole host of revolutionary new features. It allows us to deliver the Xtreme Fidelity audio standard, which unlike any other standard does not require you to do anything different than before or buy any new content.

Sound Blaster X-Fi has been very well received by the PC market since it was launched August 2005. It has created masses of interest from OEM and System Integrator as the strong X-Fi brand name strengthened the marketing position of their high end Home Theater PC (HTPC). Many future launching OEM/Sis Home Theater PCs are built with PCIe slot come with limited count of PCI slot that might not accommodate the existing version of X-Fi card.

The SB X-Fi Xtreme Audio is compliant to Standard PCIe specification. This product with cutting edge technology from the leaders in PC audio, Sound Blaster X-Fi Xtreme Audio will give users years of reliable entertainment on their PCIe-enabled personal computer.

Key Features:

- Highest Quality Audio
  - 24-bit/96kHz recording
  - 24-bit/96kHz 7.1 playback
- X-Fi CMSS-3D
  - X-Fi CMSS-3D Surround
    - Stereo Xpand for stereo to multi-channel upmix with ambient extraction and voice centering.
    - Stereo Surround for duplicating of stereo over multi-channel
  - X-Fi CMSS-3D Headphone Expander for externalization of stereo content and very accurate HRTF for 3D positioning
  - X-Fi CMSS-3D Virtual for audio virtualization and enhancements over 2 speakers.
  - Stereo Surround mode
- X-Fi Crystalizer
  - X-Fi Crystalizer enhances musical dynamics by emphasizing sharp percussive sounds and transients, creating a "punchier" and more dynamic listening experience.
- 10-Band, Multi-Channel Equalizer
  - 10-Band multi-channel Graphics Equalizer.
  - Support presets and custom preset.
- EAX.4.0 Advanced HD for games
  - EAX 3.0
  - EAX 4.0
  - 7.1 DirectSound 3D positional audio

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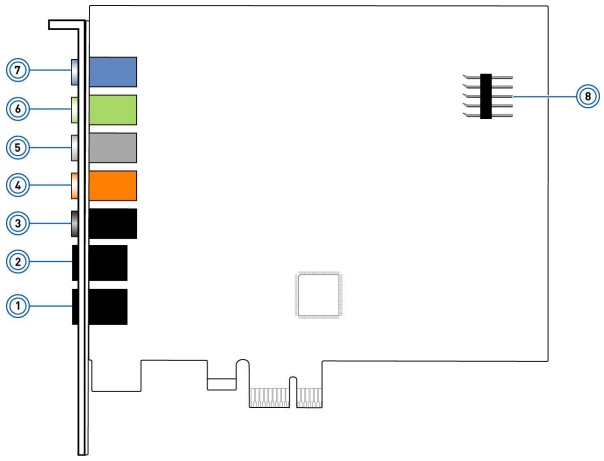
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Connectivity

Sound Blaster X-Fi Xtreme Audio PCIe audio card



	Jack or Connector	Description
1	Optical In jack	Connect playback devices with optical connectors (for example, MiniDisc players, Digital Audio Tape players or DVD players) to this jack.
2	Optical Out jack	Connect your recording devices with optical connectors (for example, MiniDisc recorders, digital audio tape recorders or external hard disk recorders) to this jack.
3	Line Out 4 jack	Connect the Rear Left and Rear Right inputs on powered analog speakers or a home theater receiver to this jack.
4	Line Out 3 jack	Connect the Front Center and Subwoofer inputs on powered analog speakers or a home theater receiver to this jack.
5	Line Out 2 jack	Connect the Side Left and Side Right inputs on powered analog speakers or a home theater receiver to this jack.
6	Line Out 1 jack	Connect the Front Left and Front Right inputs on powered analog speakers or a home theater receiver to this jack. You can also connect your stereo headphones with a 3.50 mm (1/8-inch) plug to this jack.
7	FlexiJack	Performs a 2-in-1 function, supporting Microphone In and Line In connections. Connect one of the following to this jack: • analog devices like cassette players and other line-level sources • a dynamic or low-powered electret microphone
8	Front Panel Header Audio connector	Connect one end of the Intel Front Panel Audio cable (available separately) to this connector.

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Audio Performance (Typical Values)

Reference signal is set at 1kHz

Record & Playback Sampling Rates

Recording:	8.0	kHz
	11.025	kHz
	16.0	kHz
	22.05	kHz
	24.0	kHz
	32.0	kHz
	44.1	kHz
	48.0	kHz
	96.0	kHz
Playback:	Any arbitrary sampling rate <= 96kHz	
Line_In Full Scale Input	2.0	Vrms
Line_Out Full Scale Output	2.0	Vrms
Microphone Input Impedance	> 4.0K	ohms
Line_In Impedance	10K	ohms

WAVE - LINE_OUT @ $2V_{rms}$, 1kHz

(Measured with bandlimited filter from 22Hz to 22kHz, A-Wtg Filter; 20kHz lowpass filter)

Signal To Noise Ratio (SNR)	100	dB.
Total Harmonic Distortion + Noise (THD+N)	0.007	%

Power Consumption

+12V, nominal current	255	mA
+3.3V, nominal current	290	mA

Resolution

ADC & DAC	24	bits

Temperature Range

Operating	10 °C to 50 °C
Non-Operating	-40 °C to 65 °C

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