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Find the *Creative Technology SB0460* at our website: ***Click HERE***

Sound Blaster™ X-Fi
Model SB0460
Revision 1.1

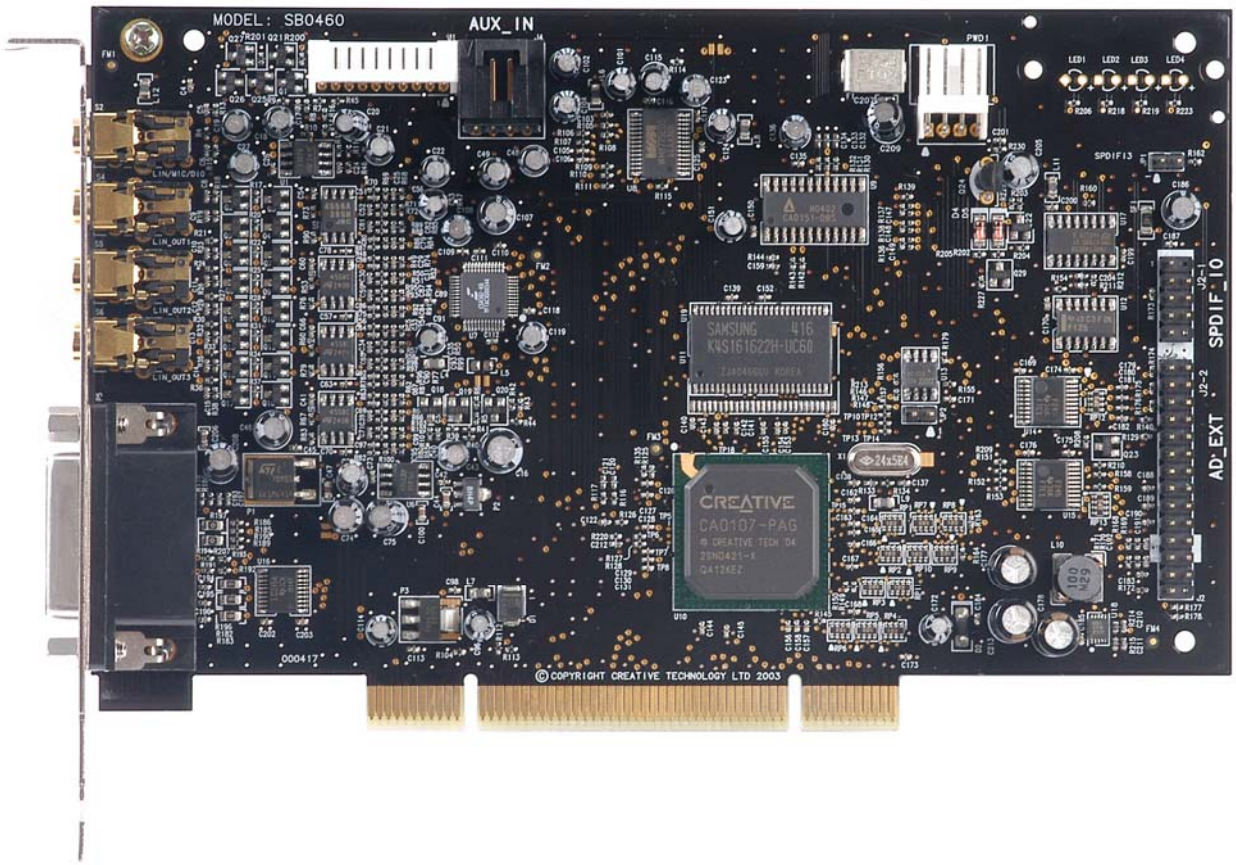


Figure 1: SB X-Fi SB0460 Card

It has been reported that people hearing the first gramophone recordings described the resulting sound as indistinguishable from the live original. Over the ensuing century of audio technology development, a similar phenomenon has been repeatedly observed: people are almost universally satisfied with whatever audio reproduction technology they've grown accustomed to... until they are offered something better. Almost overnight, the old technology then becomes unacceptable, and the new technology becomes the standard that everyone aspires to.

Such a history naturally invites speculation: what will be the next quantum improvement in audio reproduction, and what heretofore unrecognized problem will it solve? Two observations may point the way.

First, improved audio rendering is sometimes purely about fidelity, and it is sometimes purely about convenience. Most often, though, improved audio rendering results from a judicious combination of these two benefits.

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Second, the explosive growth of digital audio content and processing over the past two decades has brought without it both new opportunities and new challenges. Among the latter, albeit little commented upon, has been the increasing diversification of digital audio content formats.

Audio content today exists in an almost bewildering variety of formats: compressed, matrixed, multi-channel, high-definition, etc.. Since most playback systems are designed to be backward compatible, and since PC-based playback systems are somewhat field upgradeable, it may not be immediately obvious that this presents a problem.

What is happening more and more, though, is that content that has been optimized during production for one playback system is being played back by the consumer on a significantly different playback system. This results in an inferior listening experience that, while adequate in terms of yesterday's expectations, falls significantly short of what 21st Century listeners should demand.

These inferior listening experiences were conveniently addressed by Creative's X-Fi technology.

Creative's philosophy is to examine the audio stream in real-time in order to identify these mismatches and therefore enhance the audio in order to deliver an experience that is as true as possible to the presumed intent of the recording engineer who would ideally have delivered that quality and clarity in the first place, given the opportunity. Creative is uniquely able to do this because of our proprietary frequency-domain processing and X-Fi architecture.

Today, there is a widespread expectation that an audio playback system will simply cope with whatever content it receives: the system's responsibility is merely to make the content audible. Creative believes that a 21st Century audio playback system should do much more: a 21st Century system's responsibility is to make the listening experience as fulfilling as possible no matter what content it receives. In the future, it may be difficult to imagine why any audio playback system would do less.

Key Features:

PCI Bus Mastering

- PCI Specification up to Version 2.3 compliant
- Bus mastering reduces latency and speeds up system performance

Sound Blaster X-Fi Audio Processor

- Advanced hardware accelerated digital effects processing
- All new dedicated DSP capable of both time and frequency domain audio processing
- 128 3D voices with advanced 3D positional audio rendering algorithms
- Professional quality digital mixing and equalization maintaining 24-bit accuracy
- User-selectable Master Sampling Rate for bit-matched professional audio applications
- Ultra-high quality sample rate conversion for gaming and professional audio applications

Professional Digital Audio Processing

- 24-bit Analog-to-Digital conversion of analog inputs at 96 kHz sample rate
- 24-bit Digital-to-Analog conversion of digital sources at 96 kHz to analog 7.1 speaker output
- 24-bit Digital-to-Analog conversion of stereo digital sources at 192 kHz to stereo output
- 16-bit to 24-bit recording sampling rates: 8, 11.025, 16, 22.05, 24, 32, 44.1, 48 and 96 kHz
- ASIO 2.0 support at 16-bit/44.1kHz, 16-bit/48kHz, 24-bit/44.1kHz 24-bit/48kHz and 24-bit/96kHz
- Supports Sony/Philips Digital Interface (SPDIF) format of up to 24-bit/96 kHz quality
- SPDIF output at selectable sampling rate of 44.1, 48 or 96 kHz
- SPDIF output not available during playback of protected digital audio content authored with DRM (Digital Rights Management) technology
- ASIO 2.0 with direct monitoring

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- Accelerated ASIO for ultra low latency
- Enhanced SoundFont support of up to 24-bit resolution

Flexible Mixer Control

- Selectable input source or mixing of various audio sources for recording
- Adjustable master volume control
- Separate bass and treble control
- Front and rear balance control
- Muting, soloing and panning control for mixer sources

Mode Selector Control

- Three exclusive working modes (Entertainment Mode, Audio Creation Mode and Game Mode), optimized to perform key tasks within each category of usage

Creative MultiSpeaker Surround (CMSS)

- CMSS-3DSurround: Upmixes mono or stereo sources to 4, 5.1, 6.1 or 7.1 channels
- CMSS-3DHeadphone: Provides a multichannel playback experience over headphones for all types of content
- CMSS-3DVirtual: Provides a multichannel playback experience over two loudspeakers for all types of content
- CMSS-3DInteractive: Delivers multichannel 3D audio positioning for 3D games and 3DMIDI. Works in conjunction with CMSS-3DHeadphone and CMSS-3DVirtual to provide advanced 3D positional audio over headphones and two or four loudspeakers

THX Certification

- Sound Blaster X-Fi has received the prestigious THX Multimedia Certification award, making it the perfect choice for PC audiophiles seeking the very best music and movie experiences.

Dolby Digital and Digital Surround EX Decoding

- Decodes Dolby Digital Surround EX to 7.1 or 6.1 channels, or will pass through a compressed SPDIF bitstream to an external decoder
- Bass redirection: enhances bass output to subwoofer for small satellite speaker systems
- Crossover bass frequency (10-200 Hz): adjustable to standalone subwoofer units for desired bass level
- Adjustable Center, Rear Center and LFE level control

DTS-ES

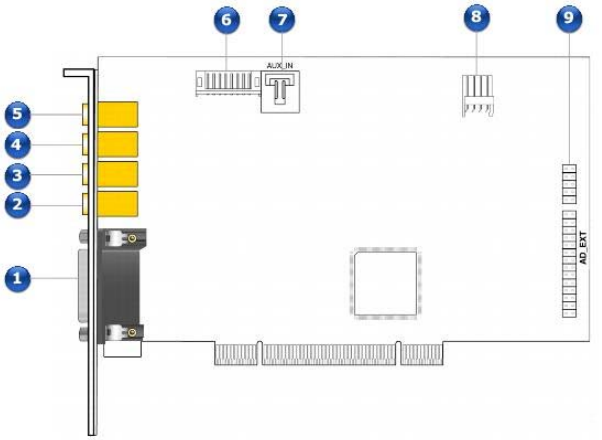
- Support DTS decoding for 5.1 audio
- Support DTS-CD playback and decoding for 5.1 audio
- Support DTS-ES for 7.1/6.1 audio
    - DTS-ES Matrix 6.1 for decoding 5.1-channel soundtracks with a back surround channel matrix encoded into the left and right surround channel
    - DTS-ES Discrete 6.1 for 6.1 soundtracks mastered with a discrete back surround channel
- Support DTS Neo:6 for upmixing two-channel matrix-encoded sources

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Sound Blaster™ X-Fi Model SB0460 Revision 1.1

Connectivity



	Jack or Connector	Description
1	AD_Link connector	Connect one end of the AD_Link cable to this connector. Connect the other end to the AD_Link (26 pin) connector on the X-Fi I/O Console*.
2	Line Out 3 jack	Connect the following inputs on powered analog speakers or a home theater receiver to this jack: • On 5.1 systems: Front Center and Subwoofer • On 6.1 systems: Front Center, Subwoofer and Rear Center • On 7.1 systems: Front Center, Subwoofer and Side Left
3	Line Out 2 jack	Connect the following inputs on powered analog speakers or a home theater receiver to this jack: • On 4.1, 5.1 and 6.1 systems: Rear Left and Rear Right • On 7.1 systems: Rear Left, Rear Right and Side Right
4	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.
5	FlexiJack	Performs a 3-in-1 function, supporting Microphone-in, Line-in and Digital I/O connections. Connect one of the following to this jack: • analog devices like cassette players and other line-level sources • a microphone • the Digital I/O Module* • external digital audio devices that accept stereo PCM or compressed Dolby Digital/DTS Bitstream from the S/PDIF output
6	Creative Proprietary connector	Provides a proprietary connection for Creative devices. Do not use this connector unless instructed to do so.
7	Aux In connector	Connect an Analog CD cable from the analog output of a TV Tuner to this connector.
8	Power	Powers the X-Fi I/O Console*

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	connector	via the AD_Link connector. Connect a power cable from your computer's power supply to this connector.
9	AD_EXT connector	Connect one end of the AD_EXT cable to this connector. Connect the other end to the AD_EXT connector on the X-Fi I/O Drive*.

Note: * Available with some models of your audio device, or as an upgrade accessory in some regions.
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Signal To Noise Ratio (SNR)	109	dB.
Total Harmonic Distortion + Noise (THD+N)	0.004	%

Power Consumption

Vcc, nominal current	1000	mA
+12V, nominal current	150	mA
-12V, nominal current	40	mA

Resolution

ADC & DAC	24	bits

Temperature Range

Operating	10 °C to 50 °C
Non-Operating	-40 °C to 70 °C

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 <= 192kHz	
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)

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