



Tech Info Library

PowerBook 5300 & 190: Sound Specs Questions & Answers (6/96)

Revised: 6/28/96
Security: Everyone

PowerBook 5300 & 190: Sound Specs Questions & Answers (6/96)

=====
Article Created: 12 June 1996
Article Reviewed/Updated: 28 June 1996

TOPIC -----

- 1) What are the total harmonic distortions from input to output?
- 2) What is the frequency response of the sound?
- 3) I need some information about all the other sound specifications for the Macintosh PowerBook 190 and 5300 series computers.

DISCUSSION -----

NOTE: Complete information on these topics is available in the PowerBook 190 and 5300 developer notes.

- 1) Question: What are the total harmonic distortions from input to output?

Answer: Total harmonic distortion and noise is less than 0.05 percent with a 1-V rms sine wave input. The signal-to-noise ratio (SNR) is 85 dB, with no audible discrete tones.

- 2) Question: What is the frequency response of the sound?

Answer: 20hz to approximately half the selected sampling rate which would be 22Khz, 11Khz, or 5.5Khz.

- 3) Question: I need some information about all the other sound specifications for the Macintosh PowerBook 190 and 5300 series computers.

Answer:

Output Impedance

The Output Impedance, nominal is 32 ohms.

Frequency Response Of The Speakers

The frequency response of the speakers will be 20 Hz to 20,000 Hz.

Line Level Input

Line Level is a standard in the audio field and now in the computer industry. Line level is defined as 1 volt peak to peak. Line Level provides an industry standard so that all audio and other electronic equipment can operate properly together. Most VCRs, including both home and professional audio equipment use Line Level as a standard.

Audio Input

The audio input of the 190 and 5300 series PowerBook is specified to operate at 5.6V Peak to Peak.

Line In Impedance

Line In Impedance: 6.8K ohms

Max Input

Max Input before clipping, Singer (sound chip) gain = 0 dB is 2 Vrms, nominal 5.6 Vpp

Max Output

Max Output into 10 k ohm load 1.4 Vrms, nominal 2 V Peak to Peak. The output level will of course drop with a low impedance load like headphones; the 2 Vpp, 32 ohm Thevenin equivalent is well suited to drive headphones.

16-bit stereo

CD-quality, 16-bit stereo sound capable of driving headphones or other stereo equipment.

Analog/Digital Conversion

Digital-to-analog and analog-to-digital conversion sampled at 11.035, 22.050, or 44.100 kHz.

This article was published in the Information Alley on 12 June 1996.

Article Change History:

28 Jun 1996 - Added info about PowerBook 190 and corrected technical info.

Copyright 1996, Apple Computer, Inc.

Tech Info Library Article Number:20002