Appendix 1: Glossary

Active Monitor: See Powered Monitor.

ADAT: A multichannel digital audio connection that streams eight channels of audio on one optical cable. Also known as Lightpipe and Optical.

Algorithm: A formula used by a sound module or effects device for generating sound.

Amplifier: Any device that alters the gain of a signal.

Amplitude: The loudness of an audio signal, illustrated by the height of the waveform.

Analog Input: A connection for analog audio signals.

Arpeggiator: Device for creating automatic arpeggios (chord-based musical patterns) based on notes input from a controller.

Attenuate: To decrease the level of an audio signal (i.e., make the sound quieter).

Audio Interface: Any device that can route audio to and from a computer. Types of audio interfaces include sound cards, USB interfaces, FireWire interfaces, and internal (built-in) audio.

Automation: The recording and playback of controller information, e.g., mixer settings.

Auxiliary Bus: A bus, or path, that receives signal from an auxiliary send.

Auxiliary Send: A secondary mixer channel output that routes signal to an independent destination in parallel with the channel's main output.

Balance: Stereo mixer channel control that determines a signal's position in the stereo field. See also Pan.

Balanced: An audio cable or connector with positive (hot), negative (cold), and ground connections.

Banana Plug: A type of audio connector commonly used for loudspeakers.

Bit Depth: The number of bits used to represent a single sample in a digital audio file.

Breakout Box: An external device that houses connections for an interface. Most commonly used to connect audio to a PCI card interface.

Breakout: A set of individual audio connections that emerge from one end of an audio snake.

Bridging: A means of combining two channels in a power amplifier into a single channel with more output power.

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Bus: On a mixer, a common path that signals share to reach a single destination point. Examples include outputs, master outputs, internal effects sends, and groups.

Channel Strip: A set of controls for a mixer channel.

Channel: (1) A path through which audio signal travels. (2) A signal path for MIDI data.

Chord Generator: MIDI processor that can generate automatic chords based on the input of single notes.

Click or Click Track: A sound used to indicate the tempo (a.k.a., a metronome).

Clipping: Condition where the amplitude of an audio exceeds the maximum allowed level, chopping off (or clipping) the signal and causing distortion.

Co-axial: A configuration where two or more forms share a common geometric axis (e.g., a co-axial speaker driver).

Combo: An amplifier with the head and speakers in one housing.

Component System: A sound reinforcement system in which the mixer, amplifiers, and loudspeakers are individual units.

Compressor: A type of audio device that reduces dynamic range by quieting any signal exceeding a specified amount (the threshold) by a given ratio.

Control Surface: Mixer-like device that offers physical control of a software mixer.

Controller: (1) Device used to transmit MIDI messages; e.g., a MIDI keyboard. (2) MIDI message used to control parameters in real time; e.g., MIDI volume and pitch bend commands.

CPU: Central Processing Unit. This is the processor that drives a digital device.

Cross-platform: A computer application or peripheral that is compatible with more than one operating system.

Crossfade: Technique for blending two audio channels or regions to create a seamless transition.

D.I.: See Direct Box.

DAW (Digital Audio Workstation): 1) A device that combines multitrack audio recording, editing, and mixing. 2) An electronic keyboard that includes MIDI and/or audio recording capabilities and audio effects.

Decibel (dB): Unit of measure for audio level.

Glossary

Digital Audio Sequencer: Software that combines multitrack digital recording, multitrack MIDI recording, mixing, and editing.

Digital Input: A connection for digital audio signals.

Direct Box: An audio device that converts a high-impedance unbalanced signal to a low-impedance balanced signal. Most commonly used to route instruments to a mixer's microphone inputs. Also known as a D.I.

Direct Monitoring: Technology that routes the inputs of the audio interface directly to its outputs, bypassing the software audio engine. Direct monitoring is used to improve monitoring latency on some native audio systems—which may be necessary if you want to use a computer in a live situation.

Download: (1) Process of transferring patches and parameter information to a digital mixer, effects device, or sound module. (2) Process for copying files onto your computer from an online source, such as a website.

Driver: (1) A loudspeaker. (2) An application that allows software and hardware to communicate.

DSP (Digital Signal Processor): Any device that's used to process digital audio; for example, a digital reverb.

DXi (DX Instrument): A software instrument that runs under the DirectX plug-in format.

Dynamics Processor: A device that can automatically control the loudness of an audio signal (for example, a compressor, limiter, expander, or gate).

Dynamics: Quality describing the loudness of a performance.

Effect: See Signal Processor.

EQ: (1) Equalization, or tone control. (2) Equalizer; a device that alters the frequency response of a signal in order to control its tone.

Expander: A dynamics processor that reduces, by varying amounts, the level of an incoming signal as it falls below a user-defined threshold.

F.O.H. (Front of House): The sound mix that the audience (house) hears.

Fade: Gradual change in audio level.

Fader: Linear control used to set signal level.

Fast Fourier Transform (FFT) Analysis: A method for analyzing the audio spectrum.

Glossary

Feedback: (1) Condition where signal at an input is looped through an output and back to the input; e.g., a microphone feeding a speaker output and the speaker feeding the microphone. (2) A feature of delay and echo effects in which some of the delayed signal is fed back to the input (and back through the delay line). Increasing feedback increases the number of repeats in the delay.

FireWire (IEEE 1394): High-speed interface protocol used for connecting peripherals such as audio interfaces and digital mixers to a computer.

Frequency: The number of times a sound wave, audio signal, or modulating device travels through its complete cycle in one second. Expressed in Hertz.

Full-range: A speaker driver that reproduces low, middle, and high frequencies.

Gain Booster: A signal processor that changes the gain of a signal in order to alter its loudness, tone, or character.

Gain Stage: A part of the signal path that adds gain.

Gain: Expression of signal level.

Gauge: (1) The thickness of an audio cable. (2) The diameter of an instrument string.

Group: (1) v. To operate two or more audio channels with one control. (2) n. A bus that routes signal from several channels to a common destination.

Hard Disk Recording: Recording audio data onto a hard drive.

Headphones Amp: An amplifier designed specifically to drive headphones.

Hertz (Hz): Cycles per second.

Host: Software application from which effects plug-ins and software instruments are launched.

Hot: Describes the loudness of an audio signal; to say a signal is “too hot” means that it is too loud, and may cause distortion.

Impedance: The total opposition to the flow of electrical current or audio signal. (Ref.: *The Sound Reinforcement Handbook*.)

Inline: A type of connection that interrupts the flow of a signal path; e.g., an insert.

Input: Any connection that enables signal to enter a circuit or signal path. Examples include mixer microphone and line inputs, returns, amplifier inputs, and effects inputs.

Insert: Section in a channel strip that routes signal to an audio processor in series with

the channel's signal flow.

Instrument Amplifier: Any amplifier designed for a specific instrument (e.g., guitar, bass, acoustic guitar, keyboards).

Instrument Level: The typical audio signal level produced by instrument pickups (typically -10dBu).

Interface: A device that routes signal to and from the computer; e.g., audio interface, MIDI interface.

Latch: Automation mode in which changes are recorded from the time you touch a control until the time you stop playback.

Latency: The delay between input and output of a signal as it travels through a digital audio system.

Library: A system for organizing effects and instrument patches into categories.

Lightpipe: See ADAT.

Limiting: Dynamics processing that stops any signal from exceeding a threshold.

Line Level: A typical audio signal level at the output of electronic devices (+4dBu balanced, -10dBV unbalanced).

Line Mixer: A mixer designed for line-level signals.

Link: To connect two or more devices (such as mixers and signal processors) to operate as one unit.

Loop: (1) v. To repeat. (2) n. Section of audio or MIDI that repeats within an arrangement.

Main Bus: See Master Bus.

Master Bus: The main output bus on a mixer.

Mic Level: A typical audio signal level produced by microphones (-20dBu balanced).

MIDI (Musical Instrument Digital Interface): Protocol for sending control signals between compatible devices.

MIDI Clock: MIDI synchronization signal that follows bars and beats.

MIDI Machine Control (MMC): A two-way communications message that allows one device to control the transport of another.

MIDI Port: A MIDI connection that can send or receive 16 MIDI channels.

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MIDI Time Code (MTC): MIDI synchronization signal that follows hours, minutes, seconds, and frames.

Mix: To blend multiple signals for final output; e.g., mixing a multitrack arrangement to a stereo format.

Modeling: Digital technology that creates sound by emulating the performance of another device; e.g., a modeling instrument based on an analog synthesizer, a modeling signal processor based on a tube guitar amp.

Modulation: Type of audio effect that uses delay and pitch controls to alter the sound over time. Examples include chorus and flanger.

Monitor: (1) v. To listen. (2) n. Playback system used to listen to audio.

Multiband Processor: A signal processor that divides the audio signal into sections, or bands, based on frequency, and processes them independently.

Multiport MIDI Interface: A device that offers multiple independent MIDI connections, each capable of transmitting or receiving 16 MIDI channels.

Multitimbral: A MIDI instrument capable of responding to more than one MIDI channel at a time.

Multitrack: A device capable of recording and playing back more than two tracks of audio.

Mute: (1) v. To silence a signal. (2) n. A switch on a mixer or other audio device that silences the output of a channel or bus.

Native: An audio system that utilizes a computer's internal processor for signal processing.

Noise Gate: Dynamics processor that attenuates any signal that falls below a threshold.

Note: MIDI message that triggers a sound in a MIDI device.

Output: Connection or bus by which signal is sent to a destination.

Over: A signal that exceeds the amplitude limit of a digital signal path, causing distortion.

Pad: A switch that attenuates an audio signal.

Pan: Control for positioning a signal in the stereo (or surround-sound) field.

Parallel: Drawing the signal from a channel without interrupting the signal flow, as with an effects send.

Glossary

Parameter: Any element in a device that can be controlled.

Patch Bay: A device that allows you to consolidate audio connections from multiple sources.

Patch Cord: A short cable used to interconnect audio devices. Uses include connecting effects on a pedalboard and connecting a mixer to an effect on a patch bay.

Patch: (1) n. A collection of settings that can be stored for later recall. (2) v. To connect two signals or devices together; e.g., patching a compressor to an insert with a patch bay.

Peak: Maximum amplitude, or loudness, of a waveform.

Phase: The relative polarity of a sound wave or audio signal.

Physical Input: A hardware input connection on an audio interface or digital mixer.

Physical Output: A hardware output connection on an audio interface or digital mixer.

Pickup Pattern: Term describing the directionality of a microphone.

Pickup: A transducer that converts string or instrument body vibrations into audio signal.

Pitch Bend: MIDI continuous controller message that's used to change the pitch of a note over a specified range.

Pitch Correction: Signal processing that conforms an audio file's pitch to a preset scale.

Playlist: A collection of tracks designated for playback.

Plug-in: Software that extends the capabilities of a host. Most commonly refers to audio effects processors and software instruments.

Polarity: Positive and negative positions of an electrical current or audio signal.

Power Amplifier (Power Amp): (1) A device that raises a signal to a voltage that can drive a set of speakers. (2) The power section in an amplifier.

Powered Mixer: A mixer with a built-in power amplifier.

Powered Monitor: A speaker enclosure with a built-in power amplifier. Also known as an Active Monitor.

Preamplifier (Preamp): A standalone device or section of a larger device that boosts an input signal's gain so it can be amplified electronically.

Program: (1) n. A memory location for storing parameters in a digital instrument, effects

device, or mixer; e.g., a synthesizer patch or effects setting. (2) v. To edit or create a sound or a part on a synthesizer, sequence, or effects device.

Proximity Effect: The change in a microphone's frequency response as it moves closer to a source.

RAM: Random Access Memory.

Read: To play back mix automation data.

Real-time Processing: Signal processing that's applied to a source as the source plays.

Resolution: The number of subdivisions in a given time format. MIDI resolution measures the number of pulses per quarter note (PPQ). Audio resolution measures the number of samples per second (see Sample Rate).

Return: An input that routes signal from an external source or internal bus into the main mix; e.g., effects return.

ReWire: A software routing protocol that's used to connect audio and MIDI between compatible applications.

Roll-off: A reduction in level.

Sample Rate: The number of samples per second, expressed in Hertz.

Sample: (1) The smallest unit in a digital audio recording. At a sample rate of 44.1 kHz, there are 44,100 samples per second of audio. (2) An audio recording that can be triggered in real time by a sampler.

Sampler: An electronic instrument that can record and play back short audio files, called samples.

Send: Mixer control that routes signal to an effects bus, output, or other destination.

Sequencer: Traditionally, a data recorder that stores MIDI commands or events. Current usage also includes DAWs.

Serial: Audio connection in which a device interrupts the signal flow (see Inline).

Shield: Part of an audio cable that rejects electronic and magnetic interference.

Signal Path: The path a source signal takes on its way to a destination. Also known as signal flow.

Signal Processor: Any device that alters a signal. Most commonly refers to audio effects.

Glossary

SMPTE-to-MIDI Converter: Device that translates SMPTE time code to MIDI Time Code (MTC).

SMPTE: Linear time code used by the Society of Motion Picture and Television Engineers that expresses time in hours, minutes, seconds, and frames.

Snake: A group of cables secured together in one large lead. Usually refers to audio cables with an input box on one end and a breakout of individual cables on the other.

Snapshot: A form of static automation that stores all current mixer settings for later recall.

Soft Synth: See Software Instrument.

Software Instrument: A software emulation of a physical instrument, such as a synthesizer.

Solo: (1) v. To silence all but the selected mixer channel(s), track(s), or region(s). (2) n. Mixer control used to isolate the playback of a channel.

Sound Card: A computer's audio interface.

Speakon: A type of locking audio connector commonly used for loudspeakers.

SPL: Sound Pressure Levels.

Split: (1) To send one audio signal to two separate destinations. (2) To separate a stereo signal into left and right mono channels.

Stack: An amp with a separate head and speakers.

Stand-alone: Refers to any device or application that can function independently.

Submix: A mix within a mix. See Group.

Subwoofer: An ultra-low frequency driver.

Sync: Synchronize.

Synchronize: To lock two devices so that they play back together.

Synthesizer: An instrument that produces sound by manipulating an electronic (or digital) signal. Synthesis techniques include additive synthesis, frequency modulation (FM), wavetable synthesis, digital modeling, and others.

System Exclusive (SysEx): MIDI messages used for transmitting parameter data between devices.

Template File: A data file that can be used by an application to set the basic parameters of a project. For example, a template file for a digital mixer might be used to zero the board.

Thru: (1) A connection that sends the signal from an input to an output without modifying it; e.g., the unbalanced pass-through connection on a direct box. (2) Avenue for MIDI transmission that passes through a device on its way to another.

Touch: Automation mode in which changes are recorded only while a control is being operated. When you let go of the control, the automation reverts to previously recorded automation information.

Transducer: A device that converts vibrations into electrical energy, such as a microphone or pickup.

Transformer: (1) An audio device that changes the impedance and balanced/unbalanced nature of a signal to match that of an input. (2) A device that transfers electric energy from one circuit to another.

Transpose: To change pitch or key, either through performance techniques or by electronic means.

Trim: Hardware mixer control used to set the input level on a channel.

TRS (Tip/Ring/Sleeve): A type of audio connector used for balanced and stereo connections

TS (Tip/Sleeve): A type of audio connector used for mono unbalanced connections.

Tweeter: A high-frequency speaker driver.

Unbalanced: An audio cable or connector with positive (hot) and ground connections.

Universal Editor/Librarian: Application that can edit and store MIDI System Exclusive information for a variety of devices from different manufacturers.

USB (Universal Serial Bus): Interface used for connecting controllers, digital mixers, and other devices to a computer.

Velocity: A MIDI note parameter that measures the force with which a key is struck. Velocity is usually used to control dynamics, but can be mapped to other attributes, such as tone.

Volume: Loudness of an audio signal.

VST (Virtual Studio Technology): A native audio plug-in format that's compatible with a

wide variety of effects and host applications.

Waveform: A visual display of an audio file.

Woofer: A low-frequency speaker driver.

Word Clock: Digital clock format that can be used to synchronize a number of digital audio devices to one master clock.

Write: To record automation data.