



Networked Digital Audio System

Hitplayer

The ideal solution for providing and controlling audio over IP networks

Hitplayer combines two stand-alone MPEG audio players with IP network services into a superior solution for both automated and interactive audio applications. Whether the program material is streamed, played from local storage, or a combination of both, Hitplayer is an innovative choice for background music, public address, entertainment sound, interactive audio systems, and transportation information.

Hitplayer and SPX420 Applications

- **Background music** in shops, restaurants and other public venues
- **Music, information and advertising** in supermarkets, convention centers or banks.
- **Announcement and entertainment systems** in trains, tramways, busses, boats.
- **Audio** for amusement parks, museums and tourist attractions.
- **Information and public address** in transportation centers, airports, train stations.
- **Corporate radio or emergency announcements** in commercial and public buildings, hospitals, universities.
- **Commercial and jingle insertion** in broadcast.
- **Backup program source** for radio broadcast.

Overview



With Hitplayer, Digigram offers a platform for multiple applications and a wide variety of configurations.

Player of locally stored audio with standard IP remote management

- Audio files format: MPEG-1 layer 2 and 3.
- Local storage (hard drive or flash card with IDE adapter).
- Dual audio outputs or single output with crossfade.
- Automatic play using integrated playlists and scheduler.
- Automatic synchronization with FTP server for updates.
- Total remote management using standard IP services.

Fully configurable local recorder (needs optional XLR input)

- Recording on local hard drive from audio input or streamed source.
- MPEG-1 Layer 2 audio files recording (parameters adjustable with stereo audio input in settings).
- Automatic date-time named files.
- Automatic archiving function: a long recording session is split in several MPEG files according to configurable settings.

Audio streaming with simultaneous multi-zone and multi-channel capabilities

- Each Hitplayer can be client and/or server.
- Live (using optional audio input) or pre-recorded program.

- Multi-zone configuration.
- Multiple servers and multi-channel architectures.
- Wide variety of implementations.

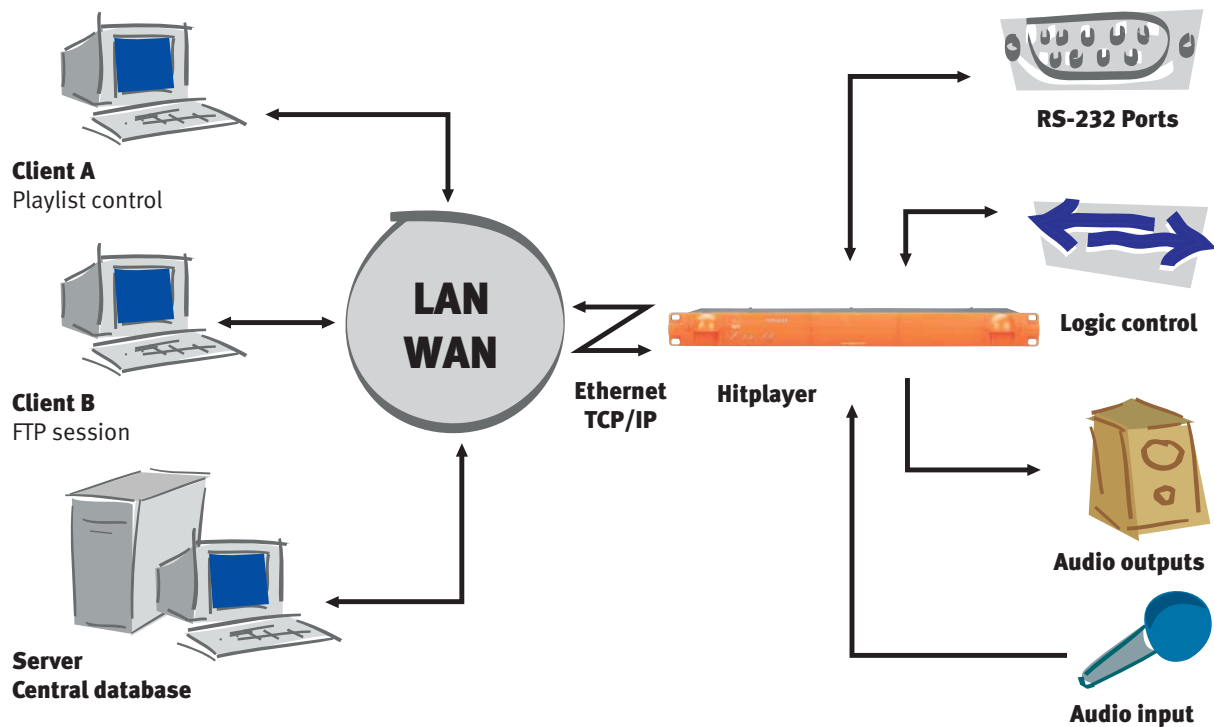
Flexible operation is provided by different configurations

- Hitplayer-L (rack mounted) for public address.
- Hitplayer Pro (rack mounted) specially designed for Radio Broadcast.
- SPX420 OEM board for easy integration into custom hardware configurations.



Meeting the needs

Hitplayer is unlike any other audio player.



Basic Configuration: Hitplayer-L as local storage, player

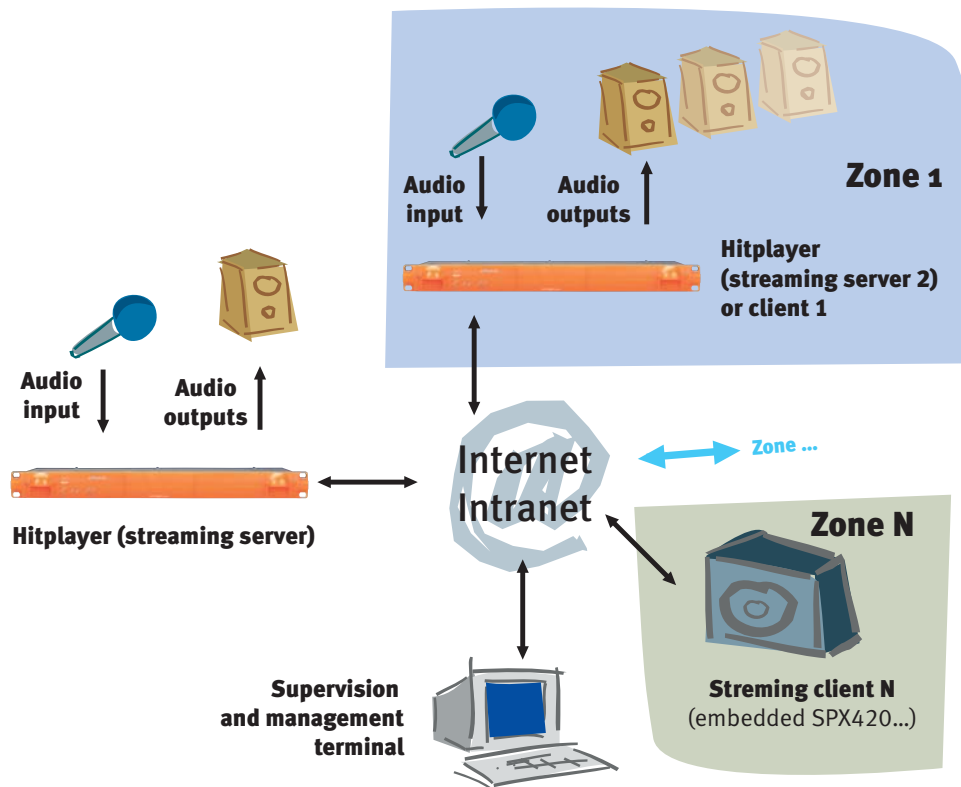
Local audio storage

Hitplayer-L uses standard, economical FAT32 formatted IDE hard drives. The hard drives may be quickly installed or removed and may be placed into a computer to preload content.

- **The internal hard drive** stores weeks of non-repeating audio content. Industry standard, digital audio file formats, "MP2" (MPEG 1 Layer II) and "MP3" (MPEG1 Layer III), are used to adjust quality to need and determine the number of storable files.
- **Audio selections are played based on programmed playlists, a playback scheduler, and/or network commands.** Playlists can be updated by automatic or on-demand synchronization with remote FTP servers.
- **Two independent stereo players** with individual outputs. These may be combined into one single output with mixing.
- **Network remote control of Hitplayer-L:**
 - determine status and send commands using UDP, Telnet, SNMP, HTTP.
 - program automatically generated events and alarm notifications via email, HTTP requests, or SNMP traps.
 - update digital audio files and system firmware using FTP.
- **Operating system embeds standard network interfaces,** enabling developers to build a variety of remote management scenarios.
- **Connection to network** is provided by 10BaseT Ethernet or an external modem that supports PPP.
- **Two RS-232 serial ports** for external device management ("Netcom" functionality).

Meeting the needs

Easy streaming over standard IP networks



A wide variety of configurations: Hitplayer-L as client/server for audio streaming

Audio over IP networks, zoning and a wide variety of architectures

Hitplayer's audio networking technology provides reliable multi-channel digital audio broadcasting over standard networks. Using UDP/IP, streams can be sent to a single, distant site (point-to-point) or numerous destinations (point-to-multipoint). The widespread availability of network bandwidth makes this an efficient and high-quality choice for closed audio networks. **A Hitplayer can function as either a server or an agent for audio streaming.**

Multiple audio channels may be transmitted simultaneously on a 10 base T network by Hitplayer servers and assigned to clients or a group of clients.

Program, music or information can be dedicated to a specific zone which makes Hitplayer particularly interesting for personalizing audio to specific areas of a place or building (e.g. hotels, supermarkets, amusement parks, airports...)

Audio channel priority can be established so that an announcement made over the assigned priority channel mutes the ongoing programming. **This feature is particularly suited for live or pre-recorded security information, in case of emergency situations.**

Many devices can become an audio networking client/server using the SPX420 OEM board. For example, the SPX420 may be used to create a network of powered speakers. Digigram provides its OEM cards to partners and guides the integration process for each customer.

Hitplayer is designed for rapid implementation. Both stand-alone and large scale integration is possible.

Features & Benefits

TCP/IP network connectivity and services



Hitplayer-L, as an audio object on the network, is remote controlled using popular web browsers, Telnet consoles, or SNMP managers.

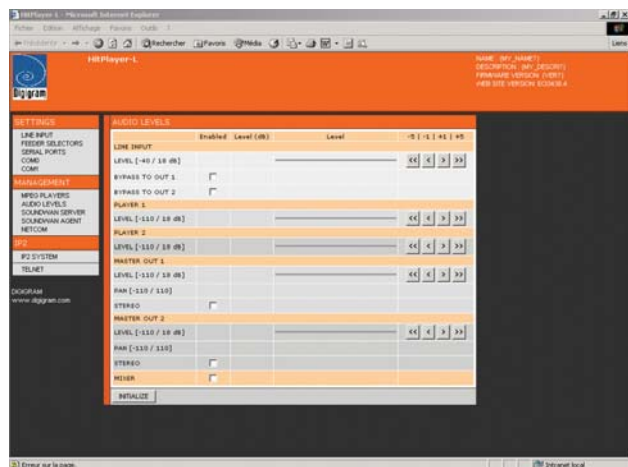
Standard TCP/IP management enables quick building, with simple network strategies and minimum expense, huge networks for background music applications. Content providers are able to personalize each background music location thanks to the management flexibility provided by the Hitplayer.

An Ethernet interface is provided to connect locally or globally via any TCP/IP network such as the Internet. **Hitplayer does not require a dedicated network and it has a DHCP client to obtain an IP address and network parameters from a server.**

Via easy-to-use Internet standard FTP, Hitplayer can be programmed to update its digital audio data files and playlist content automatically, at specific intervals, by synchronizing with a local or remote FTP server. This powerful feature allows hundreds of Hitplayers to automatically connect, fetch, and update their music content, time/date dependent schedules, and playlists according to a convenient schedule. Updating is also possible by satellite and other means using the asynchronous RS-232 interface or the specific unidirectional AZFTP mode.

Management options include:

- **Web browser:** Hitplayer has an integrated Web server that allows it to be configured in a user-friendly and intuitive manner via HTML pages. An embedded web site can be customized with standard Web editing tools that can include images, Java applets, ActiveX controls or Javascripts.
- **Telnet:** Total remote control of one Hitplayer or more through network using the standard Telnet console.
- **UDP client/server:** Receive/send Unicast (point-to-point), Multicast (Groups) or Broadcast commands.
- **SNMP agent:** Compatible with SNMP v1 protocol.
- **Events:** Any event detected by Hitplayer can trigger a single or a group of actions. Commands to execute can have effect on Hitplayer itself or, through the network, Hitplayer can send emails, SNMP traps or HTTP database requests.
- **PPP client:** Hitplayer is capable of cost effective Internet connections using a standard PSDN or ISDN modem. The modem is connected on one of the COM ports.
- **SNTP:** Thanks to time synchronization to a SNTP server (time server) all Hitplayers on a network are synchronized.
- **The operating system** is embedded in the Hitplayer to enable developers to build automation applications and complex systems.



Features & Benefits

Program management using playlists & scheduler

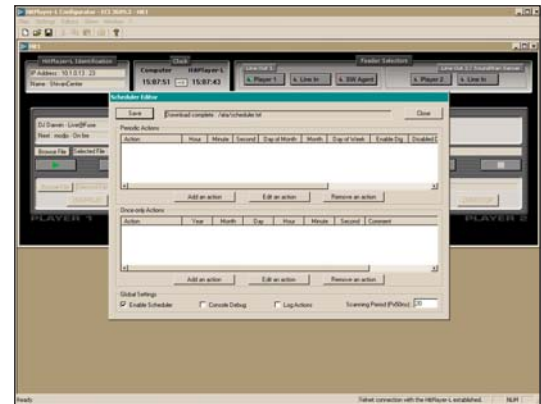
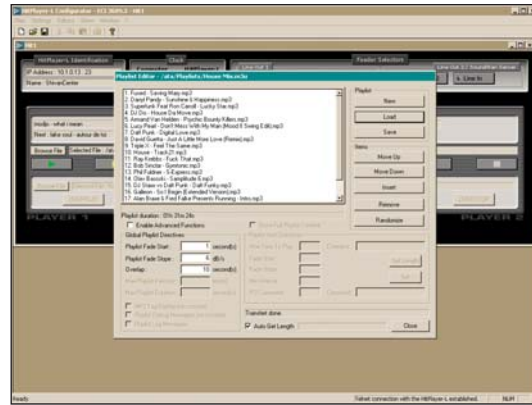
Automatic playback is accomplished using the playlist function. Hitplayer has two independent players, each managed by its own playlist. If the "Mixer" function is activated, player #1 outputs with mixing and crossfading following the parameter specified into the playlist.

Digigram provides a free configuration software (Hitplayer Configurator) with a simple to use interface for scheduling and creating complex playlists from the Hitplayer's own database (hard disk).

The Hitplayer's playlist offers the following:

- Playlist files are stored using .pls and .m3u formats
- Each song or jingle can be programmed using complex conditional rules based on:
 - Time of day
 - Specific start or stop time
 - Length to be played
 - Frequency of playback, including maximum number of plays within an authorized time window
- Continuous play can be started by an external trigger or programmed date/time parameters.
- **A powerful scheduler, using simple text files, adds the flexibility to add time- and date-dependent announcements and jingles.**

The Hitplayer also maintains a detailed history of all played files and significant system events. This is useful in providing proof-of-play when selling advertisements. The log file can be viewed in multiple ways: local terminal, web browser, Telnet or retrieve by FTP. Log file size is user programmable.



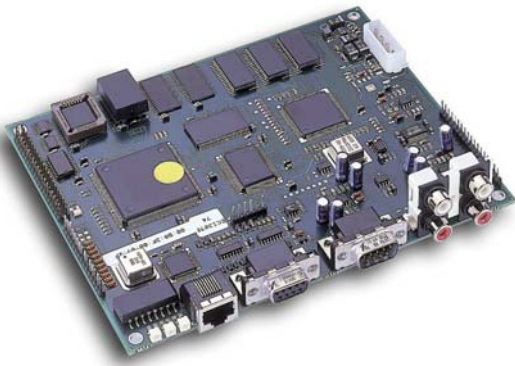
Audio Interface

Hitplayer comes standard with two independent stereo outputs. These are provided on phono (RCA) connectors (unbalanced).

Options Hitplayer-L

- Balanced XLR inputs and outputs
- GPIO daughter board with opto-isolated, configurable input/output triggers (default 4 In / 4 Out)

Digigram and our OEM development partners are working constantly on evolving the Hitplayer for new applications and options.



Specifications



- **Power supply:**
Rack: 100 - 240 VAC 50/60 Hz, IEC connector
SPX board: 5VDC (800mA) and 12VDC (100mA)
- **Consumption:** 25W max (Rack) / 6W max (SPX Board)
- **Dimensions:** Rack: 19" 1U, depth 220mm
SPX board: 130 x 165 x 30 mm
- **Weight:** Rack: 2600g without any options
SPX board: 160g
- **Operating conditions**
Humidity: 0 to 95%
Temperature: 0°C to 45°C (32°F to 113°F)

Audio files formats

- **MPEG 1 Layer 2 ("MP2"):**
32 to 256 kbps / 32, 44.1 or 48 kHz
- **MPEG 1 Layer 3 ("MP3"):**
8 to 256 kbps / 16 to 48 kHz

Audio storage

- IDE hard disk (user provided)
- File system: FAT32, enabling the hard disk to be preloaded with content using an external PC or a hard disk replicator
- Example of storage time: Using a 85 GB capacity, two months of unique mp3 files at 128 kbps

Audio outputs

- 2 stereo, unbalanced, on RCA connectors (default)
- 2 stereo, balanced, on XLR connectors (optional)
- Total harmonic distortion: 0.01%
- Dynamic range: 105dB
- Left/right channel crosstalk: 80dB
- Output level:
0dBu (+6dBu on optional balanced outputs)

Audio input (optional on Rack version)

- 1 stereo, balanced, on XLR connectors
- MPEG-1 Layer II encoding
- Input level: 0dBu

General purpose I/O interface

- **Rack version (optional)**
 - Daughter board with 8 I/O configurable by strap (default 4 In / 4 Out)
 - TTL level, opto-isolated, common ground
- **SPX board**
 - TTL level, with resistive pull ups when configured as inputs
 - Controlled via network and serial ports

RS-232 serial ports

- DB-9 connector
- COM0: console port, DCE, fully configurable
- COM1: DTE, fully configurable
- NETCOM functionality: tunneling TCP, UDP (ASCII, JBUS/MODBUS,...)
- Logic socket can be programmed to reach serial ports through the network

Ethernet Port

- 10BaseT (RJ45)
- Standard IEEE 802.3

TCP/IP services and functions

- **Telnet server:** administration, manual remote control
- **Telnet client:** enables Hitplayer, behind a proxy or a firewall, to establish a connection and dialog with an external management server
- **HTTP web server:** for easy management via personalized web interface
- **HTTP client:** enables upload of logs and events on a database using HTTP requests (eg. SQL)
- **FTP server:** for audio file or history file transfert, embedded web site and firmware update
- **FTP client:** enables connection to a server for automatic file transfert
- **UDP client/server:** to send/receive commands on the network
- **PPP client:** enables Hitplayer to drive an external modem through the COM1 port and establish a connection on the Internet through an ordinary ISP (Internet Service Provider)
- **SNMP V1, MIB2:** enables Hitplayer to be networked managed in very large systems
- **SMTP:** enables the Hitplayer to generate email triggered by events
- **DHCP client:** for automatic configuration of the network parameters
- DNS resolution
- Multicast client IGMPv1

Security

- Several levels of security and rights management

Other features

- Time-and-date-stamped history log of internal and external events
- Event handler triggers pre-programmed actions on internal or external events
- 3 programmable timers and a scheduler

Other models of the Hitplayer are designed for broadcast backup systems and for mobile, and other applications that need a ruggedized, rack mount enclosure. Contact Digigram for more information.



Digigram (www.digigram.com) digital audio solutions are key to the success of public address and pro sound installations, as well as broadcast and media production companies worldwide. We develop innovative networked audio devices, computer sound cards, and audio management software.

Digigram Powered solutions are installed in thousands of radio and television stations; corporate and commercial sound installations; and audio recording and video post-production facilities around the globe.

Customers are served from three regional business units: Digigram SA (Digigram Headquarters, Montbonnot, France), Digigram Inc. (Arlington, VA USA), and Digigram Asia (Singapore). Digigram is publicly traded on the Paris stock exchange (Code ISIN: FR 00000 35784).

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