



Waves is the world's leading developer of audio plugins and signal processors for the professional and consumer electronics audio markets.

Heard on hit records, major motion pictures, and popular video games worldwide, Waves' cutting-edge software and hardware processors are used in every aspect of audio production, from tracking to mixing to mastering, broadcast, live sound, and more.

Waves offers Native and SoundGrid audio plugins in VST, TDM, RTAS, and AU formats for Pro Tools, Logic, Cubase, Ableton and other popular hosts.

Waves began in October 1992 with the introduction of the first audio plugin, the Q10 Paraphrastic equalizer. The Q10 broke new ground in three major areas. First, it was the debut of the audio signal processor plugin, a tool commonly used today. Second, its graphic user interface gave users unprecedented control and eliminated the requirement for a DSP engineering background since it automated the filter coefficient calculations. Finally, the revolutionary Q10 offered sound quality equal to or better than many of its hardware counterparts.

Another highlight of Waves' first decade of success was the development of the L1 Ultramaximizer™, which established a new benchmark for dynamic controls. Still considered innovative over a decade later, countless L1s are an integral part of studios all over the world. Propelled by an increasingly comprehensive product line, Waves quickly became a favorite of engineers worldwide and the choice of recognized audio masters.

Waves founders Gilad Keren and Meir Shaashua share music as their first love. When establishing Waves, Gilad drew upon his experience as an accomplished sound engineer, having recorded and produced hits for major Israeli artists, while Meir had been a musician in successful bands. Both Gilad and Meir pursued engineering study: Meir went to Hebrew University and majored in Physics and Mathematics; Gilad attended Israel's Technion Institute of Technology and majored in applied Mathematics. They met through a mutual friend at a recording studio in 1982. In 1990 they both worked for a start-up called AudioAnimation. Two years later, Waves Ltd. was formed in Israel and the U.S. simultaneously.

In the years since, Waves has grown into the world's leading developer and supplier of software-based audio signal processing tools, while expanding to meet the demand for Waves processing in hardware-based products. Waves' current product line has

increased to over 60 processors that have been embraced by the audio industry in music production, film, post, and broadcast. In fact, the name Waves itself has become synonymous with top-of-the-line audio processing, and the company's products are used where superior quality is a pre-requisite: hit records, major motion pictures, and top-selling games worldwide.

Gilad remembers Waves' modest beginnings. He notes, "In the early days, a lot of people thought software would be a toy compared to hardware! But now, our products often replace multiple hardware boxes."

The Waves mission is to develop and provide solutions that enable unparalleled sonic quality for all audio applications. Underscoring this achievement, Waves award-winning audio processor plugins are now the standard technology for thousands of audio professionals in content creation. These plugins utilize Waves' proprietary DSP algorithms based on their psycho-acoustic expertise. Psycho-acoustics is the study of the perception of sound.

Waves' Maxx® technologies leverage its expertise in psycho-acoustics to provide custom semiconductor and DSP licensing solutions to consumer audio manufacturers worldwide. These solutions compensate for the acoustic quality limitations from small, power efficient speakers systems found in today's most popular CE products such as LCD TVs, notebook PCs, portable speaker systems, and mobile phones. Maxx® is already being used by some of the most important audio and consumer electronic firms in the world including Dell, Asus, Altec Lansing, Audio Products International, Clarion, JVC, Microsoft, Samsung, Sanyo and Sony.

Waves comprehensive products support over 20 different audio editing environments, both for CPU-based operation and DSP accelerator solutions. With over 150,000 users worldwide, Waves offers the broadest selection as well as the highest quality set of software solutions available.

Gilad Keren is co-founder and Chief Executive Officer of Waves Audio, the world's leading developer of digital signal processing tools, heard on hit records, major motion pictures, and popular video games the world over. Over the past two decades, Gilad has been instrumental in pioneering an entirely new kind of tool, the digital audio plugin, and the company he helped create has gone on to affect every stage of the creative audio process, from recording to mixing to mastering to broadcast, live sound, and beyond.

Mr. Keren has always had a passion for great sound. During his last year in the Israeli military, Gilad began working for the legendary Tommy Friedman, a renowned figure in the Israeli recording industry. When a cousin introduced him to (eventual Waves co-founder) Meir Shaashua, the two found a strong common interest: sound, and, more precisely, digital sound. After returning to the Technion (Israel Institute of Technology), Keren began to develop what would become Waves' first plugin, the Q10, which debuted at the Audio Engineering Society (AES) convention. In the years since, Waves has grown from a two-man operation to a worldwide company with over 150 employees and offices in the U.S., Israel, and China.

As Beatles producer Sir George Martin has put it, "Waves is synonymous with excellence."

Meir Shaashua is co-founder and Chief Technological Officer of Waves Audio. Since the company's inception, Mr. Shaashua has been responsible for the development of all products and technologies. Prior to founding the Company, he worked together with Mr. Keren at Audio Animation, where he was responsible for the development of DSP algorithms used at FM radio stations for sound enhancement. Mr. Shaashua was also part of the prestigious Talpiot program in the IDF, serving as a R&D officer for five years and completing his service at the rank of Captain. During his military service he was active in developing DSP algorithms and control software for an experimental radar system, and later served as the head of the RPV section. He holds a B.Sc. in Mathematics and Physics from the Hebrew University of Jerusalem, and also studied at Tel Aviv University's Department of Communication Control and Computers.

Among the products created under Shaashua's direction are over 100 audio processors, which have garnered dozens of awards including 4 Technical Excellence & Creativity Awards for Outstanding Technical Achievement in the category of Signal Processing Technology/Software. In the last five years, Meir once again helped Waves spearhead a revolution in the sound world with groundbreaking vintage models like the SSL 4000 Collection and The API Collection, which made it possible for engineers and artists to unleash the power of the world's most respected recording consoles, on their computer production systems.

# WAVES LIVE

## Live Sound Solutions

WavesLive offers comprehensive real-time, low-latency processing, recording and networking solutions for live, broadcast and theater productions, placing studio-grade processing tools in the hands of FOH, monitor and broadcast engineers for leading performers and renowned productions worldwide. From equalizers, compressors, reverbs and delays to metering, stereo imaging, surround tools and beyond, Waves' award-winning plugins can be used with virtually any console.



Live Sound Systems



SoundGrid Studio System



SoundGrid Studio Application



Mixers & Racks



eMotion LV1 Live Mixer



MultiRack



StudioRack



DiGiGrid Interfaces



SoundGrid Interfaces



SoundGrid Servers



SoundGrid Switches

### Product Overview:

SoundGrid systems are software and hardware solutions designed to bring real-time processing and networking and the power of Waves tools to any system, studio or live.



## Waves SoundGrid Extreme Server

### Product Overview:

The most powerful SoundGrid DSP Server ever, Waves SoundGrid Extreme is pumped up and ready to tackle your heaviest processing challenges. Try these numbers on for size: SoundGrid Extreme can run over 500 instances of Waves stereo SSL E-Channel or C4 Multiband Compressor plugins, with latency as low as 0.8 milliseconds! Featuring an Intel® i7 microprocessor which delivers over 40% more power than the SoundGrid Server One, and housed in a rugged road-ready 2U chassis, the Extreme DSP Server is a massive upgrade to any SoundGrid system.



## WAVES SoundGrid Server One

### Product Overview:

Ideal for venues of any size, Waves Server One for SoundGrid® systems is a 2U rackmount unit which packs a whopping 4 GB of RAM plugin processing power

**Waves SoundGrid®** is an innovative networking and processing platform for real-time professional audio applications.

Ideal for studios, live sound, broadcast, post-production and more, SoundGrid provides an extremely low-latency environment for high-precision audio processing. Together with a server, a Mac or PC host computer and an I/O, SoundGrid lets you run, in real time, a multitude of award-winning reverbs, equalizers, compressors, and other mixing tools by Waves, as well as any other SoundGrid-compatible third-party plugins.

### SoundGrid Key Benefits

- A powerful, cost-effective, all-in-one audio networking and processing solution
- Ideal for studio facilities, live sound, broadcast, post-production and more
- Extremely low-latency platform for Waves and third-party SoundGrid-compatible plugins
- Runs on standard Intel CPUs and 1 Gbps Ethernet networks
- Uses standard computers, switches and servers
- Integrates with analog and digital mixing consoles
- Provides a complete redundancy & recovery system
- Upcoming releases will feature recording capabilities
- Includes network infrastructure for sound installations
- Includes Waves' SoundGrid Studio System software

## **SoundGrid Technology**

SoundGrid is an Audio-over-Ethernet networking and processing technology developed by Waves. SoundGrid provides extremely low-latency, high-channel-count audio processing using standard Intel CPUs and 1 Gbps Ethernet networks for studio, live sound, and other real-time professional audio applications. Real-time audio processing is performed on standard Intel-based plugin servers, running a Waves-customized real-time version of Linux.

### **Audio Transport and System Control**

SoundGrid is a proprietary Ethernet Layer 2 Protocol and EtherType. Audio is transported and routed between networked I/O devices and is processed on plugin servers connected to the same network. The I/O device converts SoundGrid packets to standard and proprietary audio protocol schemes.

### **Audio Processing**

Taking advantage of today's extraordinary CPU power and the memory capabilities of Native processing, SoundGrid runs on standard CPUs under custom-optimized Linux OS, resulting in predictability, stability and low latency that were previously exclusive to dedicated DSP-based systems. Consequently, SoundGrid can run hundreds of compatible Waves and third-party plugins in real time, as well as extremely CPU-intensive plugins that are beyond the capabilities of DSP-based systems.

Separate computers form the basis of the SoundGrid processing ability:

- SoundGrid host – a standard Windows or Mac computer that runs the SoundGrid host application and GUI functions.
- Connect and route audio between system components
- Configure I/O devices
- Configure plugin servers
- Set system sample rate, block size, and latency
- Monitor and control system and component status
- Set redundancy and recovery modes

### **Scalability**

SoundGrid systems can be easily configured for optimal effectiveness per channel count, processing capabilities, routing and sample rate, and are easily expanded by adding I/Os or processing devices as required.

### **Third-Party Hardware and Software Compatibility**

SoundGrid is a protocol for real-time, low-latency audio processing and networking. It enables applications such as MultiRack and SoundGrid Studio and DAW plugins such as StudioRack to share and control I/O devices and servers across a network. It brings flexibility, quality and economy to work environments ranging from simple project studios to complex networked recording and broadcast companies.

The SoundGrid infrastructure is open to third-party hardware and software developers alike. Waves is working closely with additional plugin vendors and several hardware

manufacturers in order to create a wide range of solutions and expand even further the family of SoundGrid-compatible tools. Committed to this task, Waves invites additional companies to be part of this revolution. We guarantee to provide the necessary tools, support, and supervision in order to ensure the high-quality products that our industry expects and deserves.