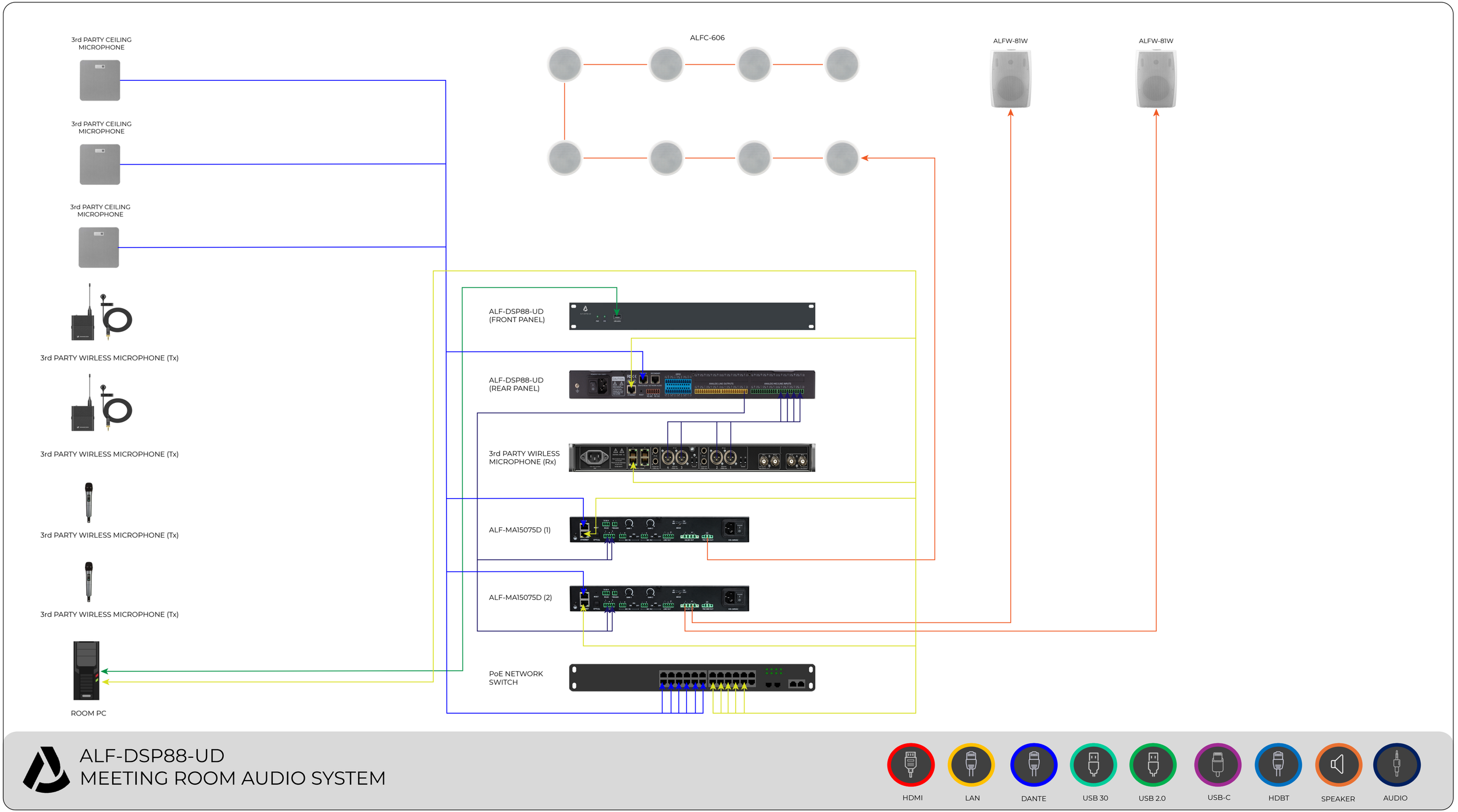

ALF-DSP88-UD
MEETING ROOM AUDIO SYSTEM

HDMI LAN DANTE USB 30 USB 2.0 USB-C HDBT SPEAKER AUDIO

The Solution

This meeting room audio solution is centred around the ALF-DSP88-UD, delivering a fully integrated and scalable platform for both in-room sound reinforcement and UC-based conferencing. The DSP acts as the core audio engine, managing multiple analogue inputs from wireless microphone receivers and other local sources, while also supporting Dante audio networking for seamless integration with digital microphones and external audio devices. Its advanced processing capabilities include Acoustic Echo Cancellation (AEC), ensuring clear voice reproduction by eliminating echo during conferencing, making it ideal for hybrid meeting environments where local and remote participants interact simultaneously. The DSP intelligently mixes, routes, and processes all incoming signals, providing optimized audio for both room playback and USB audio bridging to the room PC for UC calls.

The system also incorporates USB connectivity for direct integration with conferencing platforms, allowing the DSP to function as the main audio interface for most modern Unified Conferecing platforms. With flexible analogue outputs and Dante transmission, processed audio can be distributed efficiently to amplification systems while maintaining signal integrity. The inclusion of Dante enables simplified cabling and system expansion, allowing additional Dante-enabled devices to be added without major infrastructure changes.

Amplification is handled by the ALF-MA15075D, which features Dante connectivity, allowing it to receive audio directly from the DSP over the network without the need for analogue interconnections. This keeps the signal path fully digital from input to amplification, improving audio quality and reducing noise. The amplifier powers both distributed and front-of-house speaker systems, ensuring consistent and controlled audio coverage throughout the space.

For loudspeaker deployment, ALFW-81W wall-mounted speakers are positioned at the front of the room to provide stereo presentation audio, delivering clear and balanced sound for media playback and presentations. These are complemented by ALFC-606 ceiling speakers, which offer additional coverage across the room for even sound distribution, particularly for speech reinforcement and background audio. Together, the combination of front-of-house stereo speakers and distributed ceiling speakers ensures an immersive and intelligible audio experience for all participants, regardless of room layout.

Overall, this solution provides a powerful and flexible meeting room audio system where the ALF-DSP88-UD manages all audio processing, mixing, and conferencing integration, Dante simplifies connectivity and expansion, and the amplification and speaker system deliver high-quality, evenly distributed sound for both local and remote collaboration.

ALF-DSP88-UD Overview

The ALF-DSP88-UD is a powerful audio digital signal processor designed to deliver comprehensive audio management, processing, and control for professional AV environments. It features 8 analogue inputs and 8 analogue outputs, along with 8×8 Dante inputs and outputs, enabling seamless integration of both analogue and networked audio sources. USB audio connectivity allows direct interfacing with conferencing systems, while GPIO, RS-232, RS-485, and IP control provide flexible options for system automation and third-party integration.

At its core, the unit is powered by dual ADI SHARC 21489 processors, delivering high-performance audio processing with a 48kHz sampling rate and 24-bit resolution, a 110dB dynamic range, and a maximum level of +24dBu, ensuring high-definition audio quality throughout the signal chain. Advanced processing capabilities include Acoustic Echo Cancellation (AEC) for conferencing, Noise Suppression, and Auto Mixing, making it ideal for meeting rooms and collaborative spaces where clear speech intelligibility is critical.

The DSP offers a comprehensive suite of processing tools, including expanders, compressors, automatic gain control (AGC), parametric and graphic EQ, feedback suppression, ducking, gating, ambient noise compensation, and delay, allowing precise tuning and optimization of any audio environment. All routing, mixing, and processing functions are managed through an intuitive PC-based GUI, enabling detailed configuration of signal paths and system behaviour.

The software platform provides full control over all DSP parameters and connected peripherals, with a flexible, customisable user interface that can be tailored for engineers, integrators, or end users. Advanced permission settings ensure that only authorised functions are accessible, maintaining system integrity while allowing simplified operation where required.

ALF-MA15075 Overview

The ALF-MA15075D is a professional multi-channel power amplifier designed for high-performance audio distribution in commercial and conferencing environments. It delivers reliable and efficient amplification with a focus on flexibility, supporting both low-impedance and constant voltage speaker systems to suit a wide range of installation requirements.

The amplifier features Dante audio networking, allowing it to receive audio directly over the network from compatible DSP processors and other Dante-enabled devices. This enables a streamlined, fully digital signal path that reduces the need for analogue cabling while maintaining high audio quality and system scalability. It can also integrate easily into hybrid systems where both networked and analogue audio sources are present.

Designed for stable and consistent operation, the unit provides clean power output across multiple channels, making it suitable for driving distributed speaker systems such as ceiling speakers as well as front-of-house loudspeakers. Its architecture ensures efficient performance with low distortion, delivering clear and intelligible audio for speech and program material.

With straightforward control and integration options, the amplifier can be managed as part of a larger AV system, working seamlessly alongside DSP platforms and control systems. This makes it an ideal solution for meeting rooms, training spaces, and commercial installations requiring dependable, network-enabled amplification.

ALFW-81W Overview

The ALFW-81W is a high-performance wall-mounted loudspeaker designed for clear and dynamic audio reproduction in professional environments. Featuring a 2-way speaker design with an 8” woofer and high-frequency driver, it delivers balanced sound with strong low-frequency response and detailed high-end clarity, making it ideal for both speech and program audio.

Engineered for front-of-house and stereo presentation applications, the ALFW-81W provides wide and even sound dispersion, ensuring consistent coverage across meeting rooms, training spaces, and presentation areas. Its output characteristics make it well suited for delivering impactful media playback while maintaining excellent speech intelligibility.

The speaker is compatible with low-impedance and constant voltage systems, allowing flexible integration into a variety of audio system designs. Its robust enclosure and clean aesthetic enable discreet installation in professional spaces, while maintaining durability and long-term reliability.

Ideal for use alongside distributed ceiling speakers, the ALFW-81W enhances the overall audio experience by providing focused, high-quality sound at the front of the room, complementing broader room coverage systems and ensuring a well-balanced listening environment.

ALFC-606 Overview

The ALFC-606 is a compact 2-way ceiling loudspeaker designed to deliver clear, balanced audio for speech and background music in professional environments. Featuring a 6” woofer with a dedicated high-frequency driver and integrated backbox, it provides controlled sound dispersion and consistent performance, making it ideal for meeting rooms, training spaces, and commercial installations.

The speaker supports both low-impedance (8Ω) and constant voltage (70V/100V) operation, with selectable power taps of 30W, 15W, and 7.5W, allowing flexible system design and easy scalability across multiple zones. With a frequency response of 70Hz–20kHz and 90dB sensitivity (1W/1m), it ensures clear speech intelligibility and smooth audio reproduction across a wide coverage area.

Designed for distributed audio systems, the ALFC-606 is well suited for use as a primary or supplementary speaker, providing even sound coverage throughout a space. Its integrated backbox enhances acoustic performance while simplifying installation, making it a reliable solution for environments requiring consistent, high-quality overhead audio.

Solution Bill of Quantities

- 1 x ALF-DSP88-UD Digital signal processor
- 2 x ALF-MA15075D Amplifier
- 2 x ALFW-81W Surface mount loudspeakers
- 8 x ALFC-606 Ceiling loudspeakers
- 1 x ALF-CPL1 DSP control panel (optional)

Third Party Equipment

- 3 x 3rd party ceiling microphones
- 4 x 3rd party wireless microphone transmitters
- 1 x 3rd party wireless microphone receiver/s
- 1 x POE Network switch

Solution Use Cases

1. Standard Meeting Room with UC Integration

In a typical meeting scenario, wireless microphones and a Dante ceiling microphone feed into the ALF-DSP88-UD, where AEC, noise suppression, and auto mixing ensure clear speech for both in-room participants and remote attendees. Audio is processed and sent via Dante to the ALF-MA15075D, which powers the ALFW-81W front speakers for stereo presentation audio, while the ALFC-606 ceiling speakers provide even room coverage. The DSP also connects via USB to the room PC, delivering optimised audio for UC platforms such as Teams or Zoom, ensuring a seamless hybrid meeting experience.

2. Presentation & Training Environment

For training sessions or presentations, program audio from laptops or media sources is routed into the ALF-DSP88-UD, where it is mixed with microphone inputs and processed for clarity and balance. The ALFW-81W speakers at the front of the room deliver high-quality stereo audio for content playback, while the ALFC-606 ceiling speakers reinforce speech across the space. The DSP's flexible routing allows different audio levels and processing profiles to be applied, ensuring presenters are heard clearly without overpowering presentation content.

3. Large Meeting Room with Distributed Audio Coverage

In larger rooms, the combination of ALFW-81W and ALFC-606 speakers ensures consistent audio coverage throughout the space. The ALF-DSP88-UD manages multiple microphone inputs and applies AEC and feedback suppression to maintain intelligibility, even at higher volumes. Using Dante, audio is distributed efficiently to the ALF-MA15075D, reducing cabling complexity while maintaining a clean, digital signal path. This setup ensures all participants, regardless of seating position, experience clear and balanced audio.

4. Flexible Multi-Source Conferencing Space

In a multi-use conferencing environment, the system supports a mix of local microphones, external audio sources, and UC audio feeds. The ALF-DSP88-UD acts as the central hub, dynamically mixing analogue and Dante inputs while managing USB audio for conferencing. Different audio zones can be balanced between the ALFW-81W front speakers and ALFC-606 ceiling speakers, allowing the room to adapt between presentation mode, discussion mode, or hybrid conferencing. This flexibility ensures the system can handle a wide range of use cases without requiring hardware changes.