



iMatrix HU44

4K60 HDMI, USB 3.0 and audio in one 1U chassis: three independent 4x4 matrices, so video, USB and audio no longer have to follow each other.

4x4 HDMI 2.0 · 4K60 4:4:4 · SEAMLESS	4x4 USB 3.0 · 5 GBPS · 5 HOSTS	8x8 AUDIO MATRIX · EMBED / DE-EMBED	60 W USB-C POWER DELIVERY · DP 1.4 4K60
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Technology entry: iMatrix HU44

The seven sections below answer the judges' questions in order and total 984 words. Supporting material (photographs, architecture, datasheet excerpt, route-to-market evidence and client feedback) follows on pages 4 to 8.

1. Overview and main features

The iMatrix HU44 is a 1U hybrid matrix switcher that puts three independent matrices in one chassis: a 4x4 seamless HDMI 2.0 video matrix, a 4x4 USB 3.0 matrix and an 8x8 audio matrix.

Any of four HDMI sources (input 4 is shared with a 60 W USB-C port) can be sent to any of four 4K60 4:4:4, HDCP 2.2 displays with seamless switching. Any of four USB 3.0 device ports can be routed to any of five hosts (four USB-B plus the USB-C input), so a videobar, camera or keyboard follows whichever PC is in charge. The audio matrix embeds any of four balanced analogue inputs into any HDMI output and de-embeds any source to four balanced outputs. Video, USB and audio each keep their own six presets. Control is by front panel, IR, RS-232 or the web GUI and TCP/IP API, with CEC power control of the displays.

2. Technical background and breakthroughs

Conventional room designs force USB to follow video: a USB switch tracks the video selection, or the integrator stacks three switchers and ties them together in a control processor. The HU44's breakthrough is architectural: three switching fabrics with separate crosspoints, so one source can be on screen in one room while its USB peripherals serve a different host and its audio plays in a third.

The USB fabric is true USB 3.0 at 5 Gbps on every host and device port, so 4K videobars and storage run at full speed, with per-device power modes (follow host or always on). The USB-C input carries DisplayPort 1.4 Alt Mode video at 4K60 and 60 W Power Delivery on a single cable, and auto-switches against HDMI 4 on a last-in, first-out rule. The video path is seamless, with per-output scaling to fifteen formats, including 2560x720 and 3840x1080 for 32:9 ultrawide displays, up to 4096x2160 at 60 Hz; EDID is managed per input with seven user-defined slots.

3. Target users and the needs addressed

The HU44 is for AV integrators, consultants and corporate or education technology teams who design BYOM (bring your own meeting) rooms, divisible boardrooms and town halls, lecture theatres and multi-display training rooms.

Four needs drove the design. Guests must host from their own laptop on any platform using the room's camera and microphones, without touching a cable. The room PC must still own the peripherals when nobody is connected. Divisible spaces must combine and split video, audio and USB together or separately. And racks must get smaller. The HU44 answers all four in one unit, and its 60 W USB-C charging takes the laptop power brick off the table.

4. Bringing the technology to market

The HU44 was defined in July 2025 around the request Infobit hears most often from integrators: route USB independently of video. A signed product-requirement confirmation (revision A1.4, 17 July 2025) fixed the hybrid 4x4 HDMI and USB architecture, seamless switching, the 8x8 audio matrix, 60 W USB-C charging, and the certification plan (CE, FCC, RoHS; adapter CE, FCC, RoHS, EAC, UL, PSE).

Launch was staged for specifiers first. A consultant-ready Design Spec for Integrators and a "Why use a USB matrix in your meeting room?" explainer were published on 15 and 16 January 2026, and the HU44 launched at ISE 2026 in Barcelona (3 to 6 February 2026, stand 8E500). Integrators had reserved evaluation units by February; production was released on 27 April 2026 after sample sign-off, and the first production batch shipped in July 2026. At InfoComm Asia 2026 in Bangkok (15 to 17 July) it was the switching core of Infobit's three-room divisible-space demonstration, driven by the iControl KT069 touch panel.

5. Development challenges and how they were overcome

The hardest decision was the audio stage. A conventional hybrid matrix routes audio with the video: analogue outputs carry only HDMI audio, and an HDMI output is forced to the analogue input whenever one is connected. Infobit rejected that and required a true 8x8 audio matrix with embedding and de-embedding routed independently of each other and of the video, so audio presets never collide with video presets. That took real engineering effort and a higher bill of materials, accepted together with the move to seamless switching, because the HU44 was defined as a flagship. Level control and mixing were deliberately left to the DSP.

The hardest engineering problem was the USB-C input, which must carry 4K60 DisplayPort video and full-speed USB 3.0 data over the same four high-speed lanes. January 2026 samples confirmed the lane-sharing limit: USB data fell back to USB 2.0 behind the video. A hardware revision in March 2026 and new firmware delivered full-speed USB with 4K60 video, verified in April 2026 with a videobar, a PTZ camera and a webcam before production was released.

Three more problems were solved in hardware. Signal integrity: the rear panel was re-laid out in August 2025 to put the USB device ports beside the host ports and shorten the 5 Gbps traces. Thermal: temperature-rise testing led to a ventilated top cover, perforated in the Infobit chevron and sized within CE limits. Display formats: a field request for 32:9 ultrawide screens added 2560x720 and 3840x1080 outputs.

6. Market impact and client feedback

Since launch the HU44 has become the centre of Infobit's BYOM reference design. Early customers include 1S2C Technology, Avientek and Bay Technologies, Inc.; it is specified in integrator tender responses in Singapore, and dealer enquiries have arrived from new territories including India. 1S2C's comments are on page 8.

7. Unique selling points

To the best of Infobit's knowledge the HU44 is the first 1U unit to route HDMI, USB 3.0 and audio as three fully independent 4x4 matrices. It is a true USB 3.0 5 Gbps matrix with five hosts. One USB-C cable delivers 4K60 video, the room peripherals and 60 W charging, with automatic switching against HDMI 4. Four rooms, three signals, one box: a divisible space combines or splits with a preset per matrix. Each matrix has its own presets, four control methods, CEC display control and a published API of more than 60 commands, so it drops into any control system. One box replaces three.

Product photographs and connections



Figure 1. Front: LCD, matrix keys, MODE toggles HDMI / USB, SCENE presets, LOCK; top cover ventilated in the Infobit chevron.

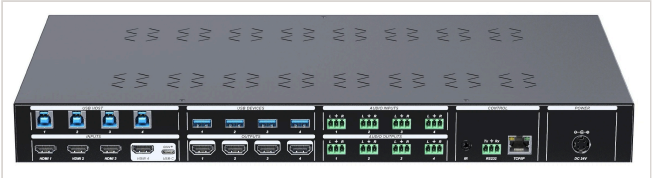


Figure 2. Rear: USB hosts, HDMI and USB-C inputs, HDMI outputs, USB devices, audio in/out, IR, RS-232, TCP/IP, DC 24 V.

Rear-panel connections (datasheet v1.0, user manual V1.1)

GROUP	CONNECTORS	FUNCTION
INPUTS	4x HDMI 2.0 Type A + 1x USB-C	Sources up to 4K@60 Hz 4:4:4, HDCP 2.2. USB-C carries DP 1.4 Alt Mode video and 60 W PD; HDMI 4 and USB-C share input 4, last-in-first-out, or selected via web GUI / RS-232.
USB HOST	4x USB-B, USB 3.0, 5 Gbps	Room PC and BYOD PCs. With the USB-C input, five hosts; any four of five are active in the USB matrix.
OUTPUTS	4x HDMI 2.0 Type A	Displays up to 4K@60 Hz 4:4:4; seamless switching; per-output resolution, picture adjustment and on-screen label; CEC power on/off.
USB DEVICES	4x USB-A, USB 3.0, 5 Gbps	Videobar, camera, speakerphone, microphones, keyboard/mouse, storage. Per-port power mode: follow host or always on.
AUDIO IN / OUT	4x + 4x 3-pin Phoenix (balanced analogue)	Inputs embed into any HDMI output or route to any analogue output; outputs carry de-embedded HDMI audio or analogue input to DSP or amplifier.
CONTROL / POWER	RS-232 (3-pin Phoenix), IR (3.5 mm), TCP/IP (RJ45); DC 24 V, 7.5 A adapter included	ASCII API over RS-232 and TCP/IP; web GUI; IR remote included; RS-232 pass-through; 1.9 W standby, auto standby after 15 min.

What one HU44 replaces

DESIGNER'S AND INSTALLER'S VIEW	THREE SEPARATE SWITCHERS	IMATRIX HU44
Chassis, rack space, power supplies	Three units, up to 3U, three supplies	One unit, 1U, one 24 V supply
Control integration	Three drivers, three IP addresses, three presets to keep in step	One API, one IP address, three preset banks in one unit
USB behaviour	A USB switch follows the video selection	USB 3.0 routed independently of video, any device to any host
Audio embed / de-embed	External de-embedders and inter-box cabling	8x8 audio matrix inside, balanced in and out
Guest laptop	Dock or adapter for video, USB and charging	One USB-C cable: 4K60 video, USB, 60 W charging, auto-switch

Architecture and application

Each fabric has its own crosspoint and its own six presets, so a source can be on screen in one room while its USB peripherals serve another host and its audio is routed elsewhere. Combining or splitting a divisible space is a preset recall per fabric, not a re-cabling exercise.

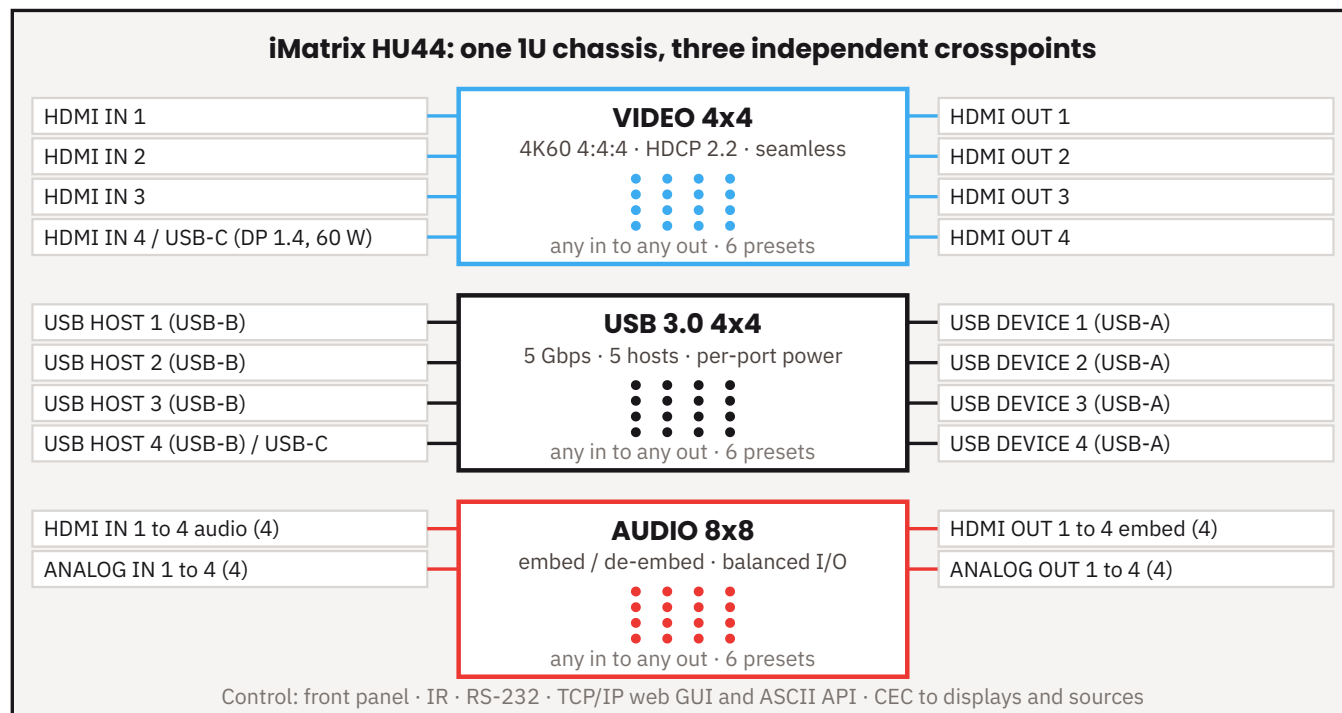


Figure 3. Signal architecture of the iMatrix HU44 (drawn from datasheet v1.0 and user manual V1.1).

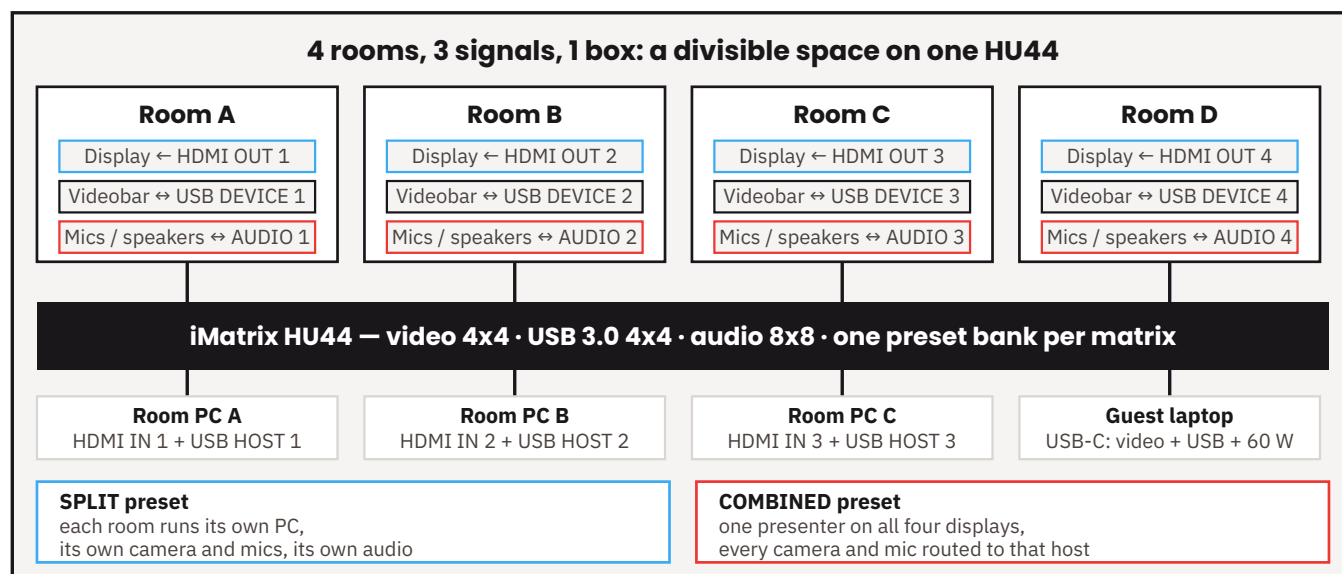


Figure 4. Four divisible rooms on one HU44: every room keeps its own display, videobar and audio; SPLIT and COMBINED are presets recalled on each matrix, together or separately.

Datasheet excerpt (datasheet v1.0)

PARAMETER	SPECIFICATION
VIDEO	
Inputs	4x HDMI Type A, 1x USB Type C; HDMI 2.0 / DisplayPort 1.4 Alt Mode; up to 4K@60 Hz 4:4:4
Outputs	4x HDMI Type A; HDMI 2.0; up to 4K@60 Hz 4:4:4; seamless switching
HDCP	HDCP 2.2 with backward compatibility, input and output
EDID / resolution	Standard VESA resolutions and user-defined EDID (7 user slots); output resolution selectable per output from 15 formats, including 2560x720 and 3840x1080 (32:9 ultrawide), up to 4096x2160 at 60 Hz 4:4:4
USB	
USB hosts	4x USB-B, USB 3.0, 5 Gbps, plus the USB-C input as fifth host
USB devices	4x USB-A, USB 3.0, 5 Gbps; any device to any of 4 (of 5) hosts; per-device power follow-host / always-on
USB-C Power Delivery	Up to 60 W on the USB-C input
BYOM	Wired BYOM switching between Room PC and BYOD laptop; compatible with USB videobars, cameras, speakers and microphones from Infobit and the leading UC peripheral brands (datasheet lists INFOBIT, Logitech, Poly, Yealink, Jabra)
AUDIO	
Audio matrix	8x8: 4 HDMI-embedded + 4 analogue inputs to 4 HDMI-embedded + 4 analogue outputs; embedding and de-embedding
Analogue audio	4x in, 4x out, 3-pin Phoenix; 20 Hz to 20 kHz; THD+N <0.05%; SNR >80 dB; crosstalk <-80 dB
Digital audio	20 Hz to 20 kHz; THD+N <0.05%; SNR >90 dB; crosstalk <-80 dB
CONTROL	
Methods	Front-panel buttons and 1.7-inch LCD, IR remote, RS-232 (115200-8-N-1), TCP/IP web GUI and ASCII API (>Set / >Get, more than 60 commands including 22 CEC commands)
Presets	6 video, 6 USB and 6 audio presets, saved and recalled independently
CEC	Display power on/off, volume and mute; source transport control
GENERAL	
Power	24 V, 7.5 A adapter included; standby consumption 1.9 W
Environment	Operating -5 to +55 °C; storage -20 to +70 °C; humidity 0 to 80%
Dimensions	436.4 x 44 x 235 mm (W x H x D), 1U rack mount, ears included
Compliance	CE; FCC Part 15 Class B (per the FCC statement in the user manual)
Warranty	3 years, extendable by a further 2 years

Client feedback, references and resources

Client feedback

“Hybrid meeting rooms have a recurring problem: the room PC, visitors' laptops, a USB videobar, microphones and displays all need to be paired in different combinations, often within minutes. The iMatrix HU44 addresses this by combining three matrices in one 1U chassis. Most installations would otherwise need three separate devices, three control paths and three sets of presets.”

Business Director, 1S2C Technology Pte Ltd, Singapore

“A conventional USB switch connects one host to all peripherals at once. The HU44 takes four USB devices and five hosts, and any device can be routed to any host independently. It is the first of its kind to have 4x4 in the industry.”

Business Director, 1S2C Technology Pte Ltd, Singapore

Resources

Demo video	iMatrix HU44 HDMI and USB matrix switcher demo (linked from the product page)
Datasheet, user manual, API reference, design spec	Downloads section of the product page
USB matrix explainer	infobitav.com/why-should-you-use-usb-matrix-in-your-meeting-room



IMATRIX HU44 PRODUCT PAGE

infobitav.com/imatrix-hu44

Datasheet, user manual V1.1, API reference, design spec and the demo video are all on this page.

ABOUT INFOBIT AV

Founded in 2009, Infobit AV designs and manufactures professional AV transmission, switching, wireless collaboration, camera, audio and control products in its own ISO-certified factory, with localised sales and support teams in Europe, North America and Asia Pacific.

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