PixelForge

Real-Time Pixel Lighting Media Server

PixelForge is a dedicated hardware media server that drives LED pixel fixtures over Art-Net, sACN, and NDI. Built on Raspberry Pi 5 with a real-time engine, it delivers professional lighting control at a fraction of the cost of traditional media servers.

OUTPUT PROTOCOLS

› Art-Net (broadcast + unicast)
› sACN / E1.31 (multicast)
› NDI video output
› Up to 32 DMX universes (16,384 pixels)
› Per-protocol NIC binding

EFFECTS ENGINE

› 9 built-in effects at 60fps
› Layer-based compositing (4 blend modes)
› Video playback (any format via ffmpeg)
› Real-time parameter control
› Custom colour palettes + HSV picker

DMX CONTROL INPUT

› Art-Net + sACN input with HTP/LTP merge
› OSC input (configurable UDP port)
› 255 cue tile presets (DMX recallable)
› Master intensity + strobe via DMX
› Configurable universe + start address

MANAGEMENT

› Web UI — no software install needed
› Visual fixture patching with grid view
› Multi-project save/load/duplicate
› HDMI live preview output
› Network interface config (DHCP/Static)

HARDWARE	ENGINE	FRAMERATE	LATENCY	UI
Raspberry Pi 5	PixelForge	60 FPS	< 1 frame	Web (HTTPS)

Why PixelForge?

Purpose-built for pixel LED installations. No laptop required — plug in power, Ethernet, and go. The engine delivers deterministic frame timing with zero garbage collection pauses. Control from any device with a web browser. Built by lighting professionals, for lighting professionals.