The Problem

You want to create a Hi-Fi earphone that stands out — not another generic single-dynamic-driver product. You need specific driver configurations (hybrid multi-driver), premium materials, and tuning that targets audiophile standards like the Harman curve. But most factories either cannot handle multi-driver assembly, or require massive MOQs that make specialty products unviable.

DIGCUE's Solution

DIGCUE offers modular Hi-Fi earphone development with flexible component combinations. You choose the shell, driver configuration, cable, and DAC — we engineer, tune, and manufacture it at MOQs that make sense for the audiophile market.

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1. The Hi-Fi Earphone Formula

Hi-Fi Earphone = Earphone Shell + Driver Configuration + Cable + DAC

Each element is independently selectable. Mix and match to create your unique product:

Component	Options	Impact
Shell	Resin, metal (aluminum/stainless), 3D-printed, wood, hybrid	Aesthetics, weight, acoustic chamber properties
Driver	Dynamic driver (DD), Balanced Armature (BA), hybrid combinations	Frequency response, detail, soundstage
Cable	OFC copper, silver-plated copper, pure silver, 4-core/8-core, detachable (MMCX/2-pin)	Signal transmission, microphonics, user experience
DAC	Integrated (Type-C with DAC chip), external, or none (3.5mm analog)	Resolution, power output, compatibility

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2. Driver Configuration Options

Configuration	Notation	Sound Characteristics	Best For
Single Dynamic Driver	1DD	Full-bodied bass, natural timbre, wide soundstage	Warm, musical sound signatures
Single Balanced Armature	1BA	Precise, detailed mids and highs	Vocal-focused, monitoring

Configuration	Notation	Sound Characteristics	Best For
1 Dynamic + 1 Balanced Armature	1DD + 1BA	DD handles bass, BA handles mids/highs. Balanced hybrid sound.	Entry-level Hi-Fi, versatile listening
1 Dynamic + 2 Balanced Armature	1DD + 2BA	DD for bass, dedicated BAs for mids and highs separately. Greater detail and separation.	Mid-tier Hi-Fi, detail-oriented listeners
1 Dynamic + 3 Balanced Armature	1DD + 3BA	DD for sub-bass/bass, BAs split across low-mid, mid, and high frequencies. Professional-grade resolution.	Premium Hi-Fi, critical listening
1 Dynamic + 4 Balanced Armature	1DD + 4BA	DD for bass foundation, 4 BAs covering full mid-to-treble spectrum with extreme precision. Flagship-level detail.	Flagship Hi-Fi, audiophile market

Crossover Design:

Multi-driver configurations require precision crossover networks to divide frequency bands cleanly between drivers. DIGCUE's acoustic engineers design custom crossover circuits for each configuration, ensuring:

No frequency overlap or cancellation between drivers

Smooth phase alignment across the entire frequency range

Each driver operating in its optimal bandwidth

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3. Tuning Philosophy — Harman Curve & Beyond

What is the Harman Curve?

The Harman target response is a scientifically researched frequency response curve that represents what the majority of listeners perceive as "good sound." It features slightly elevated bass, neutral mids, and a gentle treble presence.

DIGCUE's tuning approach:

Tuning Target	Description	Market Fit
Harman Curve	Scientifically validated "crowd-pleaser" — slight bass boost, neutral mids, smooth treble	Mass market Hi-Fi, safe choice for broad appeal

Tuning Target	Description	Market Fit
Flat/Reference	Minimal coloration, studio monitor-like accuracy	Audio professionals, mixing/mastering use
V-shaped	Elevated bass and treble, recessed mids	EDM, pop, bass-heavy genres
Warm	Elevated low-end, smooth treble rolloff	Jazz, acoustic, vocal-focused listening
Bright/Analytical	Elevated upper mids and treble, detailed and forward	Classical, detail-oriented audiophiles
Custom	Client-specified target curve based on brand sound identity	Brands with established audio DNA

Our tuning process for Hi-Fi products:

Client selects target curve or provides reference (competitor product, frequency response graph, or verbal description)

Driver configuration selected to physically support the target (e.g., 1DD+2BA for detailed mids/highs with solid bass)

Acoustic chamber geometry optimized (shell internal volume, porting, damping materials)

Crossover network designed and tuned

Measured on Hi-Res certified instruments — frequency response, impedance, THD, channel matching

Listening evaluation by "Golden Ear" engineers

Final measurement report delivered with production samples

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4. Hi-Fi Wired Earphones

Element	Options
Connector	3.5mm single-ended, 4.4mm balanced, 2.5mm balanced
Cable termination	Fixed cable or detachable (MMCX, 2-pin 0.78mm)
Cable material	OFC copper, silver-plated OFC, single-crystal copper, pure silver
Cable	4-core, 8-core, braided, twisted

Element	Options
construction	
DAC integration	None (analog) or Type-C with integrated DAC chip
Shell material	CNC aluminum, stainless steel, resin (transparent/opaque), stabilized wood, 3D-printed resin

Type-C Hi-Fi Wired Earphones (with DAC):

For devices without 3.5mm headphone jacks, we integrate high-performance DAC chips directly into the cable:

DAC Chip	SNR	Features
Bluetrum (AB Chips)	High SNR, low noise floor	Cost-effective, DIGCUE co-tuned for minimal background noise
KT series	High SNR	Good price-performance, stable supply

DIGCUE collaborates directly with Bluetrum to reduce noise floor through firmware-level optimization — achieving premium-tier silence at mid-tier pricing.

Hi-Fi TWS Earphones

Hi-Fi and TWS were once considered incompatible. Not anymore. With advanced Bluetooth codecs and high-quality driver configurations, true wireless Hi-Fi is achievable.

Element	Options
Driver configuration	1DD, 1DD+1BA, 1DD+2BA (practical limit for TWS shell size)
Bluetooth codec	SBC, AAC, aptX, aptX Adaptive, LDAC, LC3/LC3plus
Chipset	Qualcomm QCC series, Airoha, BES (Bestechnic), domestic Hi-Fi chipsets
Shell	Compact resin or metal, must accommodate multi-driver + battery + antenna
Tuning	Harman curve or custom target, integrated with chipset DSP
ANC	Optional — hybrid ANC compatible with multi-driver configurations

Challenges of Hi-Fi TWS (and how DIGCUE solves them):

Challenge	DIGCUE's Solution
Limited shell space for multiple drivers	Precision structural engineering — optimized driver placement and miniaturized crossover
Bluetooth codec limits audio quality	Support for LDAC (990kbps) and aptX Adaptive for near-lossless transmission
Battery life vs. power-hungry drivers	Efficient chipset selection + battery capacity optimization within compact form factor
Crossover complexity in tiny enclosure	Custom miniaturized crossover PCB integrated into PCBA
Consistent channel matching	100% frequency response testing on both L/R channels during production

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MOQ Flexibility

Product Type	MOQ (Existing Shell/Platform)	MOQ (Custom Shell/New Tooling)
Hi-Fi wired (1DD)	500 units	3,000 units
Hi-Fi wired (1DD+1BA)	500 units	1,000 units
Hi-Fi wired (1DD+2BA)	500 units	1000 units
Hi-Fi wired (1DD+3BA)	2,00 units	5,00 units
Hi-Fi wired (1DD+4BA)	2,00 units	5,00 units
Hi-Fi TWS (1DD)	500 units	1,000 units
Hi-Fi TWS (1DD+1BA)	500 units	1,000 units
Hi-Fi TWS (1DD+2BA)	2,000 units	1,000 units
Type-C with DAC	1,000 units	3,000 units

MOQs are flexible based on component availability and order commitment. Contact us for specific quotation.

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7. Configuration Examples

Example A — Entry-Level Audiophile Wired IEM:

Shell: Transparent resin (show internal drivers)
Drivers: 1DD (10mm) + 1BA (Knowles)
Cable: Silver-plated OFC, 4-core, detachable 2-pin
Connector: 3.5mm single-ended
Tuning: Harman curve target
MOQ: 500 units

Example B — Mid-Tier Hi-Fi Wired IEM:

Shell: CNC aluminum
Drivers: 1DD (10mm) + 3BA (Knowles/Sonion)
Cable: 8-core single-crystal copper, detachable MMCX
Connector: 4.4mm balanced
Tuning: Slightly warm with extended treble detail
MOQ: 1,000 units

Example C — Flagship Hi-Fi Wired IEM:

Shell: Stabilized wood + resin hybrid
Drivers: 1DD (10mm bio-diaphragm) + 4BA (Knowles)
Cable: Pure silver 8-core, detachable 2-pin
Connector: 4.4mm balanced + 3.5mm adapter included
Tuning: Custom target curve (client-specified)
MOQ: 1,000 units

Example D — Hi-Fi TWS:

Shell: Compact metal (aluminum alloy)
Drivers: 1DD (6mm) + 1BA
Bluetooth: 5.3, LDAC support
Chipset: Qualcomm QCC series or Airoha
ANC: Hybrid ANC
Tuning: Harman curve with slight bass emphasis
Battery: 6+ hours playback (LDAC), 30+ hours with case
MOQ: 1,000 units

Example E — Type-C Hi-Fi Earphone with DAC:

Shell: CNC aluminum
Drivers: 1DD (10mm) + 2BA
Cable: Fixed Type-C with integrated ESS Sabre DAC
Tuning: Flat/reference with Zhongke Lanxun noise floor optimization
Compatibility: Android + iPad + laptop (USB Audio Class)
MOQ: 1,000 units

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8. Quality Control for Hi-Fi Products

Hi-Fi products demand tighter tolerances than standard earphones:

QC Item	Standard Earphone	Hi-Fi Earphone (DIGCUE)
Channel matching	±3dB	±1dB
Frequency response consistency	±5dB across units	±2dB across units
THD (Total Harmonic Distortion)	<3%	<1% (at 1kHz, 94dB SPL)
Impedance matching (L/R)	±20%	±5%
Driver burn-in	Not standard	4–8 hours burn-in before final test
Listening QC	Sample-based	100% listening check on production line

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Who This Is For

- Audiophile brands building a Hi-Fi IEM product line
- Existing earphone brands adding a premium Hi-Fi tier
- Kickstarter/Indiegogo creators launching custom IEM projects
- Japanese and Korean market sellers where sound quality is the primary differentiator
- Audio enthusiasts starting their own brand with limited initial volume

Tell us your target driver configuration, sound signature, and price point — we will provide a complete proposal including BOM, tuning plan, timeline, and pricing within one week.

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