



Product Description Document

SCOPE

This document identifies the detailed requirements for the entity development process of Project Outlaw. It has been created by the project owner as the formal detailed request to the HyperX function teams as to the product requirements: specs, features, software, firmware, financial, forecast, and launch countries requirements.

DOCUMENT APPROVALS

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REVISION HISTORY

DATE	AUTHOR/CONTRIBUTOR	REVISION	CHANGE COMMENTS
8/15/22	Wesley Lew	1.0	
10/3/22	Wesley Lew	1.1	Added initial DAC & Software details
2/27/23	Wesley Lew	1.2	Additional feature details Software and Feature examples
7/6/23	Wesley Lew	1.3	Updated DAC specs/direction Added reprogrammable buttons to SW Clarified RGB and macros to hardware
7/20/23	Wesley Lew	1.4	Updates UI/UX/Software further. Aligns with MRR



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1. PRODUCT SUMMARY

HyperX Cloud Alpha 2

1.1 Project Overview

NPI Readiness Date	Q1 CY 2025
Product Launch Date	Q1 CY 2025
Target BOM Cost	\$70 USD

HyperX “Outlaw” will be the wireless flagship product in the PC Audio family and will be the reimagining of the popular Cloud Alpha headset. ID refresh will be key to differentiate it from the Cloud family and establish itself with a flagship identity and feature set. Magnetically attached deco plates will improve serviceability and provide customization for the user. Comfort and sound will be improved upon by increasing distance to the driver and widening the sound stage with breathable earpads. Simultaneous 2.4 GHz and Bluetooth will mix game and mobile audio for uninterrupted gameplay. Finally, a DAC/AMP base station will be paired with the headset to enhance the audio and microphone quality to give the users the highest quality immersion and clarity.

1.2 Stack Comparison & Competitive Analysis

HyperX Stack Comparison (where it fits in HX’s line up)

Line	Cloud Stinger	Cloud	Cloud Alpha
Image			
Market	Entry Level	Mainstream	Flagship
Driver Size	50mm	53mm	53mm
Headband Frame	Plastic	Metal	Metal
Battery Life	20 Hours	150 Hours	300 Hours
Connection	2.4 GHz	2.4 GHz	2.4 GHz + BT
Microphone	Swivel to Mute	Detachable	Detachable
Surround Sound	DTS	DTS	Customizable Surround
Audio Controls	On Earcup	On Earcup	On Earcup + DAC

Earpad	Leatherette	Leatherette	Ultrasuede
Earcup Rotation	Yes	No	Yes
Wired Mode	No	No	Yes

Market Data

Competitive Matrix

Brand	HyperX	SteelSeries	Logitech	Corsair
Model	"Fade"	Arctis Nova Pro Wireless	G Pro X2 Wireless	VIRTUOSO RGB SE Hi-Fi
Image				
Listing Price	249.99 – 349.99	349.99	229.99	229.99
Driver Size	53mm	40mm	50mm	50mm
Headband Frame	Metal	Metal	Metal	Metal
Battery Life	300 Hours	22 Hours	50 Hours	20 Hours
Connection	2.4 GHz + BT	2.4 GHz + BT	2.4 GHz	2.4 GHz
Microphone	Detachable	Retractable	Detachable	Detachable
Surround sound	DTS	360° Spatial Audio	DTS Headphone:X 2.0	7.1 Surround Sound
Audio Controls	On Earcup + DAC	On Earcup + Wireless Base Station	On Earcup	On Earcup
Ear pads	Leatherette	Leatherette	Leatherette	Leatherette
Earcup Rotation	Yes	Yes	Yes	Yes

1.3 Preliminary Product Information and Features

Description	Product Requirement
Main Requirements	Updated ID design Superior Sound Stage & Precise Imaging Premium Diaphragm Material Magnetically Attached Microphone Earcup Audio Controls Detachable Cable Improved Comfort Customizable components NGENUITY Customization DAC/AMP
Retail Box Contents	<ul style="list-style-type: none"> • Headset • Detachable Mic • Detachable Cable • DAC/AMP • Carrying case/bag for headset • QSG
System Compatibility	<input checked="" type="checkbox"/> PC/Windows 11 OS <input type="checkbox"/> Xbox Series S & Series X <input type="checkbox"/> Xbox One <input checked="" type="checkbox"/> PS4 & PS4 Pro <input checked="" type="checkbox"/> PS5 <input checked="" type="checkbox"/> Nintendo Switch <input type="checkbox"/> Steam Deck <input checked="" type="checkbox"/> Mac OS (basic keyboard functionality, stored lighting setting) <input checked="" type="checkbox"/> Other: Ngenuity 2.0 Software using Win10 support
Warranty	2 Year Warranty




1.4 Product Feature Requirements

Priority levels are defined as follows:

- **P1:** Must have – Essential to meet product goals
- **P2:** Desired feature – Nice-to-have

Headset Feature List

Item #	Priority	Features	Details	Reference/Image
1	P1	Premium ID	<ul style="list-style-type: none"> - Reimagining of Alpha - Metal Headband, fork, deco plates, sliders - Rotatable earcups 	
2	P1	Improved Sound Stage & Imaging	<ul style="list-style-type: none"> - Unrivaled audio in gaming - LCP Diaphragm or multi-material diaphragm - 53mm angled drivers - Ultrasuede Earpads 	
3	P1	Superior acoustic tuning package	<ul style="list-style-type: none"> - HyperX speaker/baffle plate design - Rear chamber tuning design - Acoustic Diffusing design 	
4	P1	Improved Boom Microphone	<ul style="list-style-type: none"> - Cloud 3 -> Fade -> Solo Cast - Uni/Bi Directional - Broadcast quality, fullband - Metal Mesh filter 	
5	P1	Improved Comfort	<ul style="list-style-type: none"> - Further driver depth - Ultrasuede Earpads 	
6	P1	Simultaneous Dual Wireless	<ul style="list-style-type: none"> - Bluetooth + 2.4 GHz 	
7	P1	Long battery life	<ul style="list-style-type: none"> - 300+ Hours battery life 	
8	P1	Internal Microphones	<ul style="list-style-type: none"> - Able to use headset without boom mic 	

			<ul style="list-style-type: none"> - Have same functions as boom mic - Minimize speech quality difference to boom mic 	
9	P2	Enhance Boom Mic Performance	<ul style="list-style-type: none"> - Use integrated microphones together with boom mic to enhance speech performance - Utilize internal microphones to enhance environmental noise cancellation 	
10	P1	Multimedia Controls	<ul style="list-style-type: none"> - Able to control BT functions on headset - Pairing, Pause/Play, Skip, Volume, etc. 	
11	P1	Wired Mode	<ul style="list-style-type: none"> - Able to use headset with detachable cable 	
12	P1	Personalized Surround Sound/Spatial	<ul style="list-style-type: none"> - Low latency, Customizable, High-end spatial 	
13	P1	Customizable Components	<ul style="list-style-type: none"> - End user personalized experience - Magnetic deco plates 	
14	P1	Detachable Microphone	<ul style="list-style-type: none"> - Firmly secured, easy to intentionally remove - LED mute indicator - Discrete connector port 	
15	P1	Onboard audio controls	<ul style="list-style-type: none"> - Volume Wheel - Mic Mute 	
16	P1	Detachable cables	<ul style="list-style-type: none"> - 3.5mm to 3.5mm - USB-C to USB-C - USB-C to 3.5mm 	
17	P2	NGENUITY Customization	<ul style="list-style-type: none"> - Provide user customization based on preference - Details in software table below 	
18	P2	HyperFlex Cable	<ul style="list-style-type: none"> - Better user experience and cable management - Improved less stiff cable 	
19	P2	Lightweight	<ul style="list-style-type: none"> - Sub 330g - Best in class comfort 	
20	P2	Fast Charging	<ul style="list-style-type: none"> - Able to quick charge battery 	
21	P2	Personalized HRTF	<ul style="list-style-type: none"> - App to capture head/ears to create custom sound profile 	

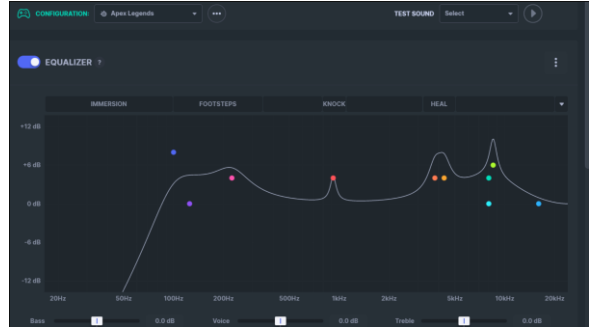




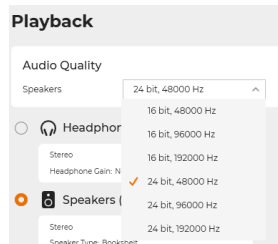
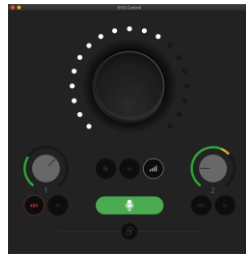
DAC/AMP Feature List

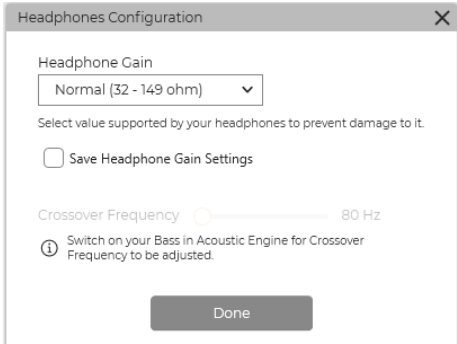
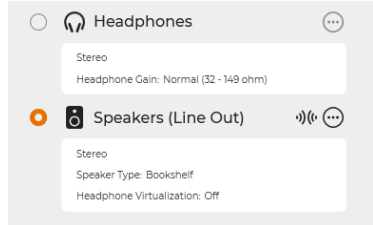
Item #	Priority	Features	Details
1	P1	Hi-Fi	<ul style="list-style-type: none"> - Premium, high performing audio/mic DAC/AMP - Low SNR - ULL: 24 bit/96kHz Playback - ULL: 16bit/32kHz Recording
2	P1	Volume Wheel	<ul style="list-style-type: none"> - Master control of volume, mic, EQ, Chat, Sidetone, etc. - Top Facing - Tactile - Tap to mute as touch sensor icon - Customizable LED Ring to indicate current volume - Revert back to default selected lighting after short duration (selected in software)
3	P1	I/O	<ul style="list-style-type: none"> - Rear Line-Out 3.5mm - Rear Line-In 3.5mm - Rear USB-C to USB-C – BUS Powered
4	P1	ChatMix (Hardware)	<ul style="list-style-type: none"> - Adjustable Levels with volume wheel - Change to customized color when adjusting chatmix - Select with button
5	P1	Sidetone/Mic Monitor (Hardware)	<ul style="list-style-type: none"> - Adjustable Levels with volume wheel - Change to customized color when adjusting sidetone - Select with button
6	P1	Quality Build	<ul style="list-style-type: none"> - Solid Weight - Should not easily move when making adjustments - Metal Housing
7	P1	Spatial Surround Sound	<ul style="list-style-type: none"> - Button for Toggle Surround - Single LED indicator to show on/off - SW Spatial only
8	P1	EQ Preset Swap	<ul style="list-style-type: none"> - Select & Change between EQs with button - Has RGB single LED Indicator to show if EQ is active - RGB button to swap between EQs
9	P1	Output selection	<ul style="list-style-type: none"> - Switch to swap output between ULL and rear 3.5mm (Headset & Speakers)
10	P1	Re-programmable buttons	<ul style="list-style-type: none"> - RGB backlit, physical buttons - Buttons that can assign different functions through software - Changes will save to hardware
11	P1	Built-in Dongle	<ul style="list-style-type: none"> - DAC will have embedded RF IC that will connect to the headset
12	P1	VU Meter	<ul style="list-style-type: none"> - Volume wheel LED used to detect microphone
13	P2	Hardware EQ	<ul style="list-style-type: none"> - Saves to DAC
14	P2	Smart/auto mic gain	<ul style="list-style-type: none"> - Automatically adjusting mic levels
15	P2	Factory Reset	<ul style="list-style-type: none"> - Allow user to reset to default
16	P2	High gain	<ul style="list-style-type: none"> - Able to power high impedance headphones - Add volume to microphone - Match or exceed SteelSeries GameDAC Gen 2*
17	P2	Replaceable buttons	<ul style="list-style-type: none"> - Buttons/keys can be removed and replaced

- Set of buttons/keys that have Out of Box icons
- Set of buttons/keys that are general-use/blank

Software Features & Design Concept (Headset + DAC)

Item #	Priority	Features	Details	Reference/Images
1	P1	EQ Presets	<ul style="list-style-type: none"> - Customizable EQ Presets - Save onto DAC/AMP - Sync with LED 	
2	P1	Product Render	<ul style="list-style-type: none"> - List of options for macros and assignments - Precise assignments for single press, double press, and press + hold - Able to revert to default OOB state - Able to customize each button's RGB color 	
3	P1	Equalizer	<ul style="list-style-type: none"> - Parametric EQ - Show approximate regions for key sounds in popular games - Show approximate regions for bass/mid/treble 	 
4	P1	Battery Indicator	<ul style="list-style-type: none"> - See battery life %/Hours left 	
5	P1	ChatMix	<ul style="list-style-type: none"> - Customizable Volume LED Ring Color when making adjustment - Sliders to adjust levels of chat vs game audio - Sync with DAC/AMP 	
6	P1	Mic Mute	<ul style="list-style-type: none"> - Toggle and sync with device LED 	
7	P1	Spatial/Surround Sound	<ul style="list-style-type: none"> - Customizable (options depend on solution available) - Room size – Slider - Reverb - Slider - Dynamic Range Control/Ambience – Slider - SW adjustment only 	

8	P1	Audio/Mic Volume Adjustment Slider	<ul style="list-style-type: none"> - Sync with Volume LED Ring (DAC) 	
9	P1	Sidetone	<ul style="list-style-type: none"> - Customizable Volume LED Ring Color when making adjustment - Slider to adjust level of sidetone (0-100) - Toggle on/off - Sync with DAC/AMP 	
10	P1	Programmable Buttons	<ul style="list-style-type: none"> - List of options for macros and assignments - Precise assignments for single press, double press, and press + hold - Able to revert to default OOB state - Able to customize each button's RGB color 	
11	P1	Default State	<ul style="list-style-type: none"> - Able to control default state - VU meter - RGB customization & on/off 	
12	P2	LED Adjustment	<ul style="list-style-type: none"> - Customize RGB zones on Volume Wheel - Precise control of volume wheel RGB (0-100 brightness, customized color for every interaction) - Customize button RGBs 	
13	P2	Audio Quality	<ul style="list-style-type: none"> - Bit Rate & Sample Size Selection 	
14	P2	Hotkey Controls	<ul style="list-style-type: none"> - Able to bind and control features with hotkeys - Sidetone, spatial, mic mute, etc. 	
15	P2	Live Monitor/VU Meter	<ul style="list-style-type: none"> - Real-time voice meter for microphone monitoring using Volume LED Wheel - Toggle on/off 	

16	P2	High/Low Gain Adjustment	- Able to save setting into hardware	
17	P2	Sound profiles	- Audio levels, EQ, ChatMix, Sidetone, etc. all saved to profiles	
18	P2	Noise Suppression	- AI Noise Reduction - Toggle - Noise Gate – Slider	
19	P2	Firmware/Driver Update	- Notification updates for firmware or drivers	
20	P2	Factory Reset	- Button to Factory Reset	
21	P2	Community Shared Profiles	- Allow import/export of EQs, profiles, overall setting preferences to share	
22	P2	Smart/Auto Mic Gain	- Toggle & Sync with DAC/AMP	
23	P2	Output selection	- Swap between the connected front and back devices connected	
24	P2	Wireless (2.4 GHz) [re-pair]	- Option/guide user to re-pair headset ULL - Indicate to user pairing is occurring and successful	
25	P2	Personalized HRTF	- HRTF (picture upload) – May need to sync with mobile for ease of use	



2. PROJECT LAUNCH INFORMATION

2.1 Project Scope

Description	Requirement
Regions	Global
Market Position	Flagship
NPI Quantity	TBD

2.2 Volume Forecast (6 months)

Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
TBD	TBD	TBD	TBD	TBD	TBD

Regional breakdown

Non -Keyboard:

US	EMEA	CHINA	APAC	LATAM
TBD	TBD	TBD	TBD	TBD

3. FINANCIAL REQUIREMENTS

3.1 Cost Structure

Description	Cost Requirement
Target Product Cost	TBD
Target Accessories Cost (if applicable)	TBD
Target Packaging Cost	TBD
Total Cost	\$75



4. PRODUCT ID

4.1 Product Visualization

5. USER EXPERIENCE

5.1 Use Cases

Category	Specification
Software	<ul style="list-style-type: none">TBD
Firmware	<ul style="list-style-type: none">TBD
Hardware	<ul style="list-style-type: none">TBD
Cable	<ul style="list-style-type: none">TBD
Mechanical	<ul style="list-style-type: none">TBD
Electrical	<ul style="list-style-type: none">TBD

6. ACCESSORIES

6.1 Accessories

Accessories subject to change depending on cost structure

Accessory	Specification
Detachable Cable	3.5mm – 3.5mm HyperFlex Cable
Headset Bag	