Product & Procurement Design Specification

1. Document Overview

- **Document Title:** ApolloX Hyperphone — Procurement & Design Spec

- **Version:** 1.0

- **Date:** April 13, 2025

- **Author(s):**

    - *Alice Brooks (Lead Procurement Analyst)*

    - *David Chan (Hardware Engineering Manager)*

Purpose:
 This document captures all the technical, procurement, and vendor details needed to develop the **ApolloX Hyperphone** in a seamless manner. It defines the Bill of Materials (BOM), RFI/RFQ/RFP schedules, vendor data, budget estimates, team assignments, and milestone timelines—ensuring clarity and synchronization between Engineering and Procurement.

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2. Project Details

- **Project Name/Code:** *ApolloX Hyperphone*

- **Brief Description:**
   The ApolloX Hyperphone is a next-generation smartphone featuring an advanced 6.8-inch high-refresh-rate display, a custom AI accelerator chip, a triple-lens camera system with integrated AR functionalities, and a long-lasting 5,000mAh battery.

- **Project Files & References:**

    - *CAD Files:* [ApolloX_Hyperphone_CAD_v3.1.dwg]

- *Design PDFs:* [ApolloX_Hyperphone_Schematics.pdf]

- *Associated Documents:* [ApolloX_BOM_Sheet_v1.xlsx, AR_Feature_Requirements.docx]

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3. Stakeholders & Roles

3.1 Engineering Team

Name	Role/Title	Responsibilities	Contact Info
John Doe	Lead Hardware Engineer	Oversee main device architecture, coordinate CAD files	j.doe@apollox.com, ext. 1101
Maria Williams	Camera Systems Engineer	Define camera specs, coordinate with camera OEMs	m.williams@apollox.com, ext. 1112
Laura Chen	RF/Antenna Engineer	Oversee design of 5G, Wi-Fi 6E, and BT 5.2 antennas	l.chen@apollox.com, ext. 1125
Carlos Mendoza	AI Accelerator Engineer	Manage AI chip integration & performance benchmarks	c.mendoza@apollox.com, ext. 1133

3.2 Procurement Team

Name	Role/Title	Responsibilities	Contact Info
Sarah Johnson	Lead Procurement Manager	Oversee all RFI/RFQ/RFP, finalize vendor negotiations	s.johnson@apollox.com, ext. 2104
Kevin Lee	Sourcing Specialist	Identify prospective suppliers, handle initial outreach	k.lee@apollox.com, ext. 2107
Alice Brooks	Procurement Analyst	Manage cost analysis, vendor pricing comparisons	a.brooks@apollox.com, ext. 2111
Henry Adams	Contracts & Legal Specialist	Draft and review procurement contracts, ensure compliance	h.adams@apollox.com, ext. 2122

3.3 Executive Sponsors / Approvers

Name	Title	Scope of Approval	Contact Info
Dr. Avery Morgan	VP of Product	Final approval on product specs	a.morgan@apollox.com, ext. 3000
Mark Spalding	CFO	Budget & contract sign-off	m.spalding@apollox.com, ext. 3005

4. Bill of Materials (BOM) & Key Specifications

Item / Component	Technical Spec	Qty.	Vendors Available	Notes
6.8-inch 120Hz AMOLED Display	3200×1440 resolution, 120Hz refresh rate, HDR10+	12,000	3 Vendors	Need integration w/ curved glass design
ApolloX AI Accelerator (7nm, 10-core)	2.8GHz clock, integrated AR engine, on-die memory	12,000	1 Vendor	Internal prototype from affiliate foundry, limited supply
Triple Camera Module (50 MP wide + 12 MP ultra)	50 MP wide lens, 12 MP ultra-wide, 8 MP telephoto w/ 3x optical zoom	12,000	3 Vendors	Must handle advanced AR overlay + night mode
5,000mAh Battery Pack	25W fast charging, 18W wireless charging, Li-ion polymer	12,000	5 Vendors	Must meet QC, UL certifications
5G, Wi-Fi 6E, Bluetooth 5.2 Module	Integrated connectivity, sub-6GHz 5G, mmWave optional	12,000	4 Vendors	Evaluate local compliance in certain markets
Aluminum-Glass Frame	Corning Gorilla Glass Victus + Aluminum Alloy 7000 series	12,000	2 Vendors	Frame must support IP68 water resistance

5. Procurement Activities

5.1 RFI (Request for Information)

RFI Title/ID: RFI-101 — Battery Module Innovations

- **Objective / Description:**
  Gather information on next-generation Li-ion polymer battery modules with improved thermal management.

- **Date Issued:** April 14, 2025

- **Requested Return Date (Deadline):** April 28, 2025

- **Issued By (Procurement Contact):** Sarah Johnson (Lead Procurement Manager)

- **Engineering Contact:** Carlos Mendoza (AI Accelerator Engineer) — to verify how battery specs align with AI chip power demands

- **Scope / Focus:**

  - Battery module efficiency and capacity retention over 500 charge cycles

  - Overheating prevention methods (heat pipe vs. advanced insulation)

  - Maximum feasible capacity in sub-7mm phone thickness

- **Questions / Information Sought:**

  - Technical roadmaps on next-gen Li-ion designs

  - Compliance with recycling regulations (e-waste guidelines)

  - Testing or certifications for extreme temperature usage

- **Responding Vendors:**

  - **EnergySafe Co.**: Preliminary data provided, needs clarifications

  - **GreenCell Systems**: Interested, RFI response expected next week

  - **PowerEdge Labs**: Confirmed receipt, will return by April 26

- **Status:** Open — awaiting final responses

5.2 RFQ (Request for Quote)

RFQ Title/ID: RFQ-202 — 6.8-inch AMOLED Display

- **Date Issued:** April 10, 2025

- **Deadline for Quote Submission:** April 20, 2025

- **Requested By (Procurement Contact):** Kevin Lee (Sourcing Specialist)

- **Engineering Lead (for clarifications):** John Doe (Lead Hardware Engineer)

- **Item / Service Requested:** 6.8-inch 120Hz AMOLED Display, 3200×1440 resolution

- **Quantity Required:** 12,000 units

- **Quality / Performance Specs:**

    - HDR10+ certification

    - Peak brightness > 1100 nits

    - Curved edge tolerance ±0.2mm

- **Delivery Requirements:**

    - Initial lot of 2,000 displays by June 15, 2025

    - Full batch of 12,000 by August 1, 2025

- **Vendor Responses:**

    - **DisplayMakers Corp.**

        - Quoted Price per Unit: $36

        - Lead Time: 8 weeks from PO

        - Payment Terms: Net 30 upon delivery

        - Validity of Quote: Until May 10, 2025

    - **VisionX Display**

- - - ■ Quoted Price per Unit: $38

      ■ Lead Time: 6 weeks from PO

      ■ Payment Terms: 30% upfront, balance net 30

      ■ Validity of Quote: Until May 15, 2025

    ○ **AMOLEDPro**

      ■ Quoted Price per Unit: $34

      ■ Lead Time: 7 weeks from PO

      ■ Payment Terms: 25% upfront, 75% on receipt

      ■ Validity of Quote: Until May 20, 2025

- **Award Decision Date:** April 25, 2025

- **Status:** Under Review

5.3 RFP (Request for Proposal)

RFP Title/ID: RFP-301 — Triple Camera Module + AR Integration

- **Scope & Objectives:**
  Seeking comprehensive camera module design (50 MP wide, 12 MP ultra-wide, 8 MP telephoto) bundled with AI-based AR tracking software. Must integrate seamlessly with the ApolloX AI Accelerator.

- **Date Issued:** April 12, 2025

- **Proposal Due Date:** May 2, 2025

- **Procurement Contact:** Alice Brooks (Procurement Analyst)

- **Engineering Lead & Other Stakeholders:**

  ○ Maria Williams (Camera Systems Engineer)

- ○ Carlos Mendoza (AI Accelerator Engineer)

- **Technical Requirements:**

  - ○ Camera modules with multi-frame noise reduction

  - ○ AR overlay capable of 6DOF (six degrees of freedom) tracking

  - ○ Low-light performance must meet or exceed 0.1 lux environment clarity

- **Commercial Requirements:**

  - ○ Target budget for entire module: $50–$55 per unit

  - ○ Payment terms: Net 45 or milestone-based

  - ○ 1-year warranty on parts, optional extension to 2 years

- **Evaluation Criteria:**

  - ○ Technical fit and AR software stability

  - ○ Cost competitiveness

  - ○ Delivery timeline (max 10 weeks for first batch)

  - ○ Supplier track record in camera technologies

- **Vendor Proposals & Summaries:**

  - ○ **OptiVision Tech**

    - ■ Key Technical: 50 MP wide lens with advanced OIS, robust AR library

    - ■ Cost: $53/unit, milestone-based payment

    - ■ Implementation Plan: 2-phase approach (hardware then AR integration)

    - ■ Evaluation Score (tentative): 88/100

  - ○ **PhotonEdge Solutions**

- - - ■ Key Technical: 12 MP ultra-wide with custom IR filter for AR, synergy with known AI chips

    - ■ Cost: $52/unit, net 45

    - ■ Implementation Plan: "One-step" module + integrated software package

    - ■ Evaluation Score (tentative): 90/100

  - ○ **MacroTech Imaging**

    - ■ Key Technical: Emphasis on telephoto clarity in night conditions

    - ■ Cost: $56/unit, net 30

    - ■ Implementation Plan: Bundled approach with optional software add-ons

    - ■ Evaluation Score (tentative): 85/100

- ● **Award Decision & Justification:**

  - ○ To be determined by May 10, 2025 (after proposal evaluations)

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6. Vendor Information & Discovery

Vendor ID	Vendor Name	Contact	Components / Services	Lead Time	MOQ	Unit Price	Payment Terms	Status
VND-101	DisplayMakers Corp.	Jane Li (jli@displaymakers.com)	6.8-inch AMOLED, optional glass lamination	8 weeks	2,000	$36	Net 30 upon delivery	Under negotiation

VND-102	VisionX Display	Robert Chang (rc@visionx.com)	6.8-inch AMOLED, flexible display variants	6 weeks	2,000	$38	30% upfront, 70% net 30	Received initial quote
VND-103	AMOLEDPro	Linda Perez (linda@amoledpro.ai)	6.8-inch AMOLED, advanced low-power consumption	7 weeks	2,000	$34	25% upfront, remainder net 30	In final review
VND-104	PowerEdge Labs	Martin King (mking@pelabs.com)	Li-ion battery modules, advanced thermal solutions	5 weeks	1,500	$9	Net 45	RFI in progress
VND-105	EnergySafe Co.	Daniel Cho (dcho@energysafe.co)	Li-ion battery modules, mid-range capacity options	6 weeks	2,000	$10	20% upfront, net 30	RFI in progress
VND-106	OptiVision Tech	Sarah Rose (s.rose@ovtech.net)	Camera modules, AR integration library	8 weeks	2,000	$53	Milestone-based	Submitted RFP proposal
VND-107	PhotonEdge Solutions	Henry Wu (hwu@photonedge.com)	Camera modules, AI software add-ons	7 weeks	2,000	$52	Net 45	Submitted RFP proposal
VND-108	MacroTech Imaging	Barbara Lee (barb@macrotech.im)	Camera modules, specialized	8 weeks	2,000	$56	Net 30	Submitted RFP proposal

telephoto
optics

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7. Pricing & Budget

7.1 Estimated Costs Per Major Component

Component	Estimated Unit Cost	Quantity	Extended Cost	Buffer / Contingency	Notes
6.8-inch AMOLED Display	$36	12,000	$432,000	5%	Price may change based on final negotiations
ApolloX AI Accelerator (7nm, 10-core)	$45 (internal costing)	12,000	$540,000	10%	Limited run from affiliate foundry
Triple Camera System (50 MP + AR software)	$52–$55 (est)	12,000	~$624,000 (avg)	10%	Depends on final RFP results
5,000mAh Battery Pack	$9–$10	12,000	~$108,000	5%	Evaluating advanced thermal solutions
5G, Wi-Fi 6E, Bluetooth 5.2 Module	$6 (est)	12,000	$72,000	5%	Price depends on mmWave support inclusion
Aluminum-Glass Frame	$12	12,000	$144,000	5%	Includes Corning glass for front/back panels

7.2 Overall Budget & Contingency

- **Target Budget:** ~$2.0M

- **Total Contingency Reserve:** $150K (approx. 8% of total)

- **Budget Owner:** Mark Spalding (CFO)

8. Key Dates & Milestones

Milestone	Target Date	Owner	Dependencies
Complete BOM & Tech Specs	April 9, 2025	John Doe (Engineering)	Initial product concept sign-off
Issue RFIs	April 14, 2025	Sarah Johnson (Procurement)	Final requirements from engineering
RFI Responses Due	April 28, 2025	Vendors	Vendors need complete scope clarifications
Issue RFQs	April 10, 2025	Kevin Lee (Procurement)	BOM & final specs from engineering
RFQ Responses Due	April 20, 2025	Vendors	Enough time to gather quotes and clarifications
RFP Released (if needed)	April 12, 2025	Alice Brooks (Procurement)	Approved budget scope for camera + AR integration
RFP Proposal Deadline	May 2, 2025	Vendors	Vendor reference designs, cost proposals, timelines
Vendor Selection / Contracts Signed	May 10, 2025	Procurement + Executive Sponsors	Final CFO approval for major contracts
Production Kickoff	June 1, 2025	Engineering + Vendor(s)	PO issuance, final design lock, vendor readiness