

CONFIDENTIAL CLIENT REPORT

Geopolitical Supply Chain Risk Report

D

HIGH RISK

Overall geopolitical risk score: **56/100**

13 of 31 components flagged at high or critical risk.

BOM analysed	IoT_Sensor_Board.csv
Components	31
Manufacturers resolved	31/31 (100%) — footprint at manufacturer level
Report date	28 July 2026, 16:38
Geo-risk data	As of 2026-07-23 — OFAC / BIS / EU / UCDP / EIA (public sources)
Supply data	Estimated — not part of risk scoring
Scoring engine	BOMShield V2.0
Report ID	8794F6F116 (content integrity fingerprint)

Prepared by BOMShield, a Genesis Retrotech project. This document is a risk screening aid, not legal or export-compliance advice. See the Methodology appendix for sources and limitations.

01 — OVERVIEW

Executive Summary

This bill of materials carries **high** geopolitical risk (score 56/100, grade D). **13** of 31 components are at high or critical risk and warrant attention. Exposure is concentrated in **China**: an average of **34%** fabrication exposure across the BOM, with **29 of 31** components carrying some China exposure. A further 29 component(s) sit in an export-controlled jurisdiction (country-level flag, not an entity match). Potential exposure to 3 disrupted maritime chokepoint(s), based on assumed manufacturing regions and standard routes.

Geo-Risk Score	Risk Grade	China Exposure	High-Risk Parts	Sanctions Flags
56/100	D	34%	13/31	0

02 — RISK BREAKDOWN

Risk Scorecard

Each factor is scored 0–100 by current severity. They are combined with different weights into the overall geo-risk score shown above.

Country exposure (HQ / fabrication)		28/100
Maritime chokepoints		45/100
Active conflicts		17/100
Named-entity sanctions		0/100
Jurisdictional policy exposure		36/100
Energy & freight pressure		65/100

Named-entity sanctions reflects matches against named SDN / BIS Entity / EU lists (0 = none found). **Jurisdictional policy exposure** reflects country-level export-control regimes (e.g. China) and is **not, by itself, a sanction on any part** — it is a policy-context signal to verify, not a block.

Components by risk level

Critical		6 (19%)
High		7 (23%)
Medium		16 (52%)
Low		2 (6%)

03 — WHAT TO DO

Priority Action Plan

Flagged parts grouped into risk clusters (same manufacturer + same driver), so a repeated family is one action rather than many near-identical lines. Built from geopolitical data only; specific drop-in replacements require part-level qualification (see below). Full per-part detail is in the appendix.

1. GD25Q16CEIGR — GigaDevice

Risk 100/100. Why: Country-level export-control exposure (fabrication region); Suez Canal: disrupted (severity 70%); HQ: China (high risk); Single-country fab: China.

Action: qualify a non-China second source — start with high-quantity or no-stock parts.

2. CH340C — WCH

Risk 100/100. Why: Country-level export-control exposure (fabrication region); Suez Canal: disrupted (severity 70%); HQ: China (high risk); Single-country fab: China.

Action: qualify a non-China second source — start with high-quantity or no-stock parts.

3. ESP32-S3-WROOM-1-N8 — Espressif

Risk 98/100. Why: Country-level export-control exposure (fabrication region); Taiwan Strait: disrupted (severity 28%); Suez Canal: disrupted (severity 70%); HQ: China (high risk).

Action: qualify a non-China second source — start with high-quantity or no-stock parts.

4. RC0402FR-0710KL — Yageo

Risk 81/100. Why: Country-level export-control exposure (fabrication region); Suez Canal: disrupted (severity 70%); Taiwan Strait: disrupted (severity 28%); HQ: Taiwan (high risk).

Action: qualify a non-China second source — start with high-quantity or no-stock parts.

5. LTST-C171GKT — Lite-On

Risk 81/100. Why: Country-level export-control exposure (fabrication region); Suez Canal: disrupted (severity 70%); Taiwan Strait: disrupted (severity 28%); HQ: Taiwan (high risk).

Action: qualify a non-China second source — start with high-quantity or no-stock parts.

6. USB4105-GF-A — GCT

Risk 78/100. Why: Country-level export-control exposure (fabrication region); Suez Canal: disrupted (severity 70%); Single-country fab: China; High energy costs (1.60x freight).

Action: qualify a non-China second source — start with high-quantity or no-stock parts.

7. ABM8-16.000MHZ-B2-T — Abracon

Risk 54/100. Why: Country-level export-control exposure (fabrication region); Taiwan Strait: disrupted (severity 28%); Suez Canal: disrupted (severity 70%); High energy costs (1.60x freight).

Action: qualify a non-China second source — start with high-quantity or no-stock parts.

8. Vishay — 2 parts ×2 positions

Risk up to 50/100. Common driver: Elevated country / route exposure.

Parts: CRCW040233R0FKED, SI2301CDS-T1-GE3.

Action: add a second source in a lower-risk region — applies to the family; qualify per part.

9. CL05B104KO5NNNC — Samsung Electro-Mechanics

Risk 49/100. Why: Country-level export-control exposure (fabrication region); Suez Canal: disrupted (severity 70%); High energy costs (1.60x freight); China exposure: 33% of fab chain.

Action: qualify a non-China second source — start with high-quantity or no-stock parts.

10. XAL5030-222MEB — Coilcraft

Risk 45/100. Why: Country-level export-control exposure (fabrication region); Suez Canal: disrupted (severity 70%); High energy costs (1.60x freight); China exposure: 50% of fab chain.

Action: qualify a non-China second source — start with high-quantity or no-stock parts.

Showing the top 10 risk clusters covering 11 distinct parts. 2 further flagged parts are listed in the per-component appendix.

Strategic diversification

- **Reduce China concentration.** 34% average China exposure across the BOM — prioritise a second source outside China on the parts above.
- **Watch shipping routes.** Likely exposure to: Malacca, Suez, Taiwan Strait (based on assumed manufacturing regions). Factor longer lead times and rerouting into planning.

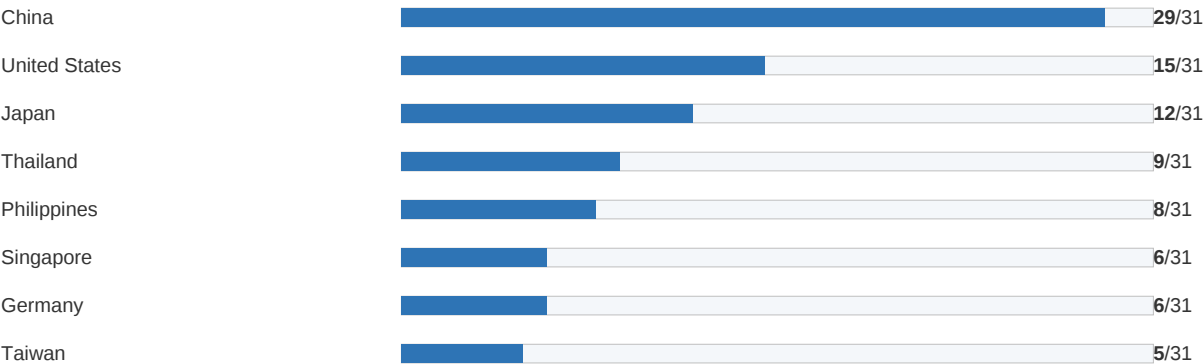
Need qualified drop-in alternatives for the components above?

Genesis Retrotech performs retro-engineering, X-ray tomography and alternative qualification to secure your at-risk lines. Talk to us: selisabeth@genesis-retrotech.fr.

04 — EXPOSURE MAP

Geographic & Route Exposure

Components with manufacturing in each country



Potential maritime chokepoint exposure

Based on assumed manufacturing regions and standard maritime routes — not the actual shipping lane, which depends on the specific supplier, Incoterm and lot.

- **Malacca** — on a likely route for one or more components in this BOM.
- **Suez** — on a likely route for one or more components in this BOM.
- **Taiwan Strait** — on a likely route for one or more components in this BOM.

05 — COMPLIANCE

Sanctions & Compliance Flags

No component in this BOM matches a named sanctioned entity or a comprehensively embargoed country based on current OFAC / BIS / EU data. This is a name-based screening result, not a formal compliance determination.

Country-level export-control exposure

Additionally, **29 component position(s)** (29 distinct part(s)) are manufactured in or headquartered in a jurisdiction subject to export controls (e.g. China). This is a **country-level flag, not a match against a sanctioned entity** — it is informational and does not by itself block sourcing.

06 — APPENDIX

Per-Component Detail

All scored components, sorted by geopolitical risk (highest first). “Part No.” is the identifier as supplied in your BOM (manufacturer part number or distributor SKU), used as-is. “Mfr footprint” lists countries where the manufacturer is known to fabricate — it is a manufacturer-level footprint, not a confirmed origin for this specific part number.

Ref	Part No.	Manufacturer	Mfr footprint	Geo Risk	CN %	TW %	Level
U9	GD25Q16CEIGR	GigaDevice	China	100	100	0	critical
U10	CH340C	WCH	China	100	100	0	critical
U2	ESP32-S3-WROOM-1-N8	Espressif	China, Taiwan	98	50	50	critical
R1	RC0402FR-0710KL	Yageo	Taiwan, China +1	81	33	33	critical
D1	LTST-C171GKT	Lite-On	Taiwan, China +1	81	33	33	critical
J1	USB4105-GF-A	GCT	China	78	100	0	critical
Y1	ABM8-16.000MHZ-B2-T	Abrakon	United States, Taiwan +1	54	33	33	high
R2	CRCW040233R0FKED	Vishay	United States, Israel +3	50	20	0	high
Q2	SI2301CDS-T1-GE3	Vishay	United States, Israel +3	50	20	0	high
C2	CL05B104KO5NNNC	Samsung Electro-Mechanics	South Korea, China +1	49	33	0	high
L2	XAL5030-222MEB	Coilcraft	United States, China	45	50	0	high
BT1	BC-2032-F1-G	Memory Protection Devices	United States, China	45	50	0	high
TP1	5001	Keystone	United States, China	45	50	0	high
F1	0467003.NR	Littelfuse	United States, China +1	43	33	0	medium
U4	PN7160B1HN/C11002Y	NXP	Netherlands, United States +3	42	20	20	medium
J3	5031821852	Molex	United States, China +2	41	25	0	medium
J2	SM04B-SRSS-TB(LF)(S N)	JST	Japan, China +1	40	33	0	medium
SW1	TL3342F160QG	Alps Alpine	Japan, China +1	40	33	0	medium
R3	ERJ-2RKF1002X	Panasonic	Japan, China +2	39	25	0	medium
C1	GRM155R71C104KA88D	Murata	Japan, China +3	38	20	0	medium
L1	LQM18PN1R0MCHD	Murata	Japan, China +3	38	20	0	medium
-	HEADER_2X5	Murata	Japan, China +3	38	20	0	medium
Q1	BSS138	onsemi	United States, South Korea +3	36	20	0	medium
U3	TPS63020DSJR	Texas Instruments	United States, Japan +2	35	25	0	medium
U5	SN74LVC1G125DBVR	TI	United States, Japan +2	35	25	0	medium
U6	ADS1115IDGSR	Texas Instruments	United States, Japan +2	35	25	0	medium
D2	PMEG3010ER,115	Nexperia	Netherlands, Germany +3	33	20	0	medium
U1	STM32F401CCU6	STMicroelectronics	France, Italy +3	30	20	0	medium
U7	MAX17048G+T	Maxim Integrated	United States, Philippines +1	22	0	0	low
U8	ATECC608B-TNGLOOS-G	Microchip Technology	United States, Thailand	21	0	0	low

07 — METHODOLOGY

Sources & Approach

BOMShield scores geopolitical supply chain risk using only public, verifiable sources. Each component's manufacturer is mapped to its headquarters and known fabrication countries, then evaluated across five factors: country exposure, maritime chokepoints, active conflicts, sanctions & export controls, and energy/freight pressure.

Source	Publisher	Used for
OFAC SDN & BIS Entity List	U.S. Treasury / Dept. of Commerce	Sanctions, export controls
EU Consolidated List	European Commission	Sanctions, trade restrictions
UCDP	Uppsala University (CC BY 4.0)	Armed conflict intensity
EIA	U.S. Energy Information Admin.	Energy prices / freight
Maritime chokepoint status	Composite public sources	Route disruption

Report traceability. Scoring engine **BOMShield V2.0** · generated 28 July 2026, 16:38 · content integrity ID **8794F6F116**. The ID is a deterministic fingerprint of the scored data: the same BOM and data version always reproduce it, so a printed report can be tied back to its exact dataset.

Geo-risk data last updated: **2026-07-23**. Supply data (stock, lifecycle, lead time) shown in the app is estimated unless on a live data plan, and does not contribute to the geopolitical risk score in this report.

Limitations. This report is a screening aid. It does not constitute legal advice, a formal export-compliance determination, or part-level ITAR/EAR classification. Sanctions screening is name-based and may require human confirmation. Country signals reflect the manufacturer's known footprint and standard routes, not the confirmed origin or shipping lane of the specific part. Always validate critical decisions with qualified counsel.

Data sensitivity. BOMShield is a public screening tool, not an accredited environment for sensitive data. Do not submit classified, export-controlled, or contractually confidential bills of materials.

From screening to solution

**This report told you *where* your supply chain is exposed.
Genesis Retrotech fixes it.**

When a component is obsolete, single-sourced, or stuck behind a geopolitical wall, GRT secures the line: retro-engineering, X-ray tomography, documentation reconstruction, and qualification of drop-in alternatives.

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