

5. Israel Multi Layered Air Defence- International Relation

Israel and U.S. launch strikes on Iran, targeting its leadership. Israel's "Security by Design" philosophy ensures that no single point of failure exists. If an Iranian ballistic missile is missed by the Arrow-3 in space, the Arrow-2 or THAAD targets it in the atmosphere. If a cruise missile maneuvers past them, David's Sling engages. Finally, for the swarm of rockets and drones, the Iron Dome and the cost-effective Iron Beam act as the final shield.

1. The Multi-Layered Architecture- From Space to Surface

Israel's defence is structured hierarchically based on the altitude and range of the incoming threat.

A. The Upper Tier- Arrow-2 and Arrow-3

Strategic Purpose- Specifically developed to counter the Iranian long-range ballistic missile threat.

Interception Zone- Arrow-3- Designed for exo-atmospheric interception (outside the Earth's atmosphere), hitting missiles during their space-flight phase.

1. Arrow-2- Targets missiles within the upper atmosphere.

Warhead Safety- By intercepting at extreme altitudes, the system ensures that any chemical, biological, or nuclear warheads are dispersed safely away from populated areas.

Collaboration- A joint venture between Israel Aerospace Industries (IAI) and the American firm Boeing.

B. The Mid-Tier- David's Sling

Target Profile- Designed to neutralize medium-to-long-range ballistic missiles, cruise missiles, and large drones.

Operational Range- Effectively intercepts threats fired from 100 km to 200 km (62-124 miles) away.

Versatility- Beyond missiles, it is highly capable of targeting enemy aircraft and sophisticated cruise missiles that fly at lower altitudes.

Partnership- Developed by Israel's Rafael Advanced Défense Systems and the U.S.-based RTX Corp.

C. The Short-Range Tier- Iron Dome

Core Function- Built to intercept short-range rockets (like those used by Hamas), mortars, and small UAVs.

Mechanism- Each truck-towed unit uses radar-guided missiles to destroy threats in mid-air.

Evolution- * C-Dome- A naval variant deployed in 2017 to protect ships and offshore gas rigs.

1. Range Expansion- Originally for threats between 4 km and 70 km, its operational envelope has been significantly widened in recent years.

U.S. Support- Heavily backed by U.S. funding and co-production.

D. The Future Tier- Iron Beam

Technology- A ground-based, high-power laser system declared fully operational in late 2025.

Mechanism- Uses directed energy to "super-heat" and disable drones and mortars instantly.

Economic Advantage- Unlike the Iron Dome, which uses expensive interceptor missiles (Tamir missiles), the "cost per kill" for Iron Beam is negligible, relying only on electricity.

2. Comparative Summary of Defence Layers

System	Range / Altitude	Primary Threat	Technology
Arrow-3	Exo-atmospheric	Long-range Ballistic Missiles	Hit-to-kill Interceptor
Arrow-2	Upper Atmosphere	Medium/Long-range Ballistic	Proximity Blast
David's Sling	100 km – 200 km	Cruise Missiles, Drones, Aircraft	Dual-mode Seeker
Iron Dome	4 km – 70+ km	Rockets, Mortars, Short-range UAVs	Radar-guided Tamir Missiles
Iron Beam	Short Range	Small UAVs, Mortars	Directed Energy Laser

THAAD (U.S.)	Terminal Phase	Short/Medium/Intermediate Ballistic	Kinetic Energy (Hit-to-kill)
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3. External Reinforcements- The U.S. THAAD System

Deployment- In October 2024, the U.S. deployed the Terminal High Altitude Area Défense (THAAD) to Israel to provide an additional "fail-safe" layer.

Specialization- THAAD is unique in its ability to intercept ballistic missiles during their terminal phase (the final descent toward the target).

Strategic Integration- It serves as a bridge between the high-altitude Arrow system and the mid-tier David's Sling.

4. Active Air Defence- The Role of Aircraft

In addition to ground-based batteries, the Israeli Air Force (IAF) plays a critical role-

Fighter Jets & Helicopters- Combat aircraft use air-to-air missiles to hunt and destroy "slow-moving" threats like suicide drones (kamikaze UAVs) before they even reach the ground-based radar zones.

Mobile Interception- This adds a dynamic, moving layer to the static defence batteries.

Source- <https://www.thehindu.com/news/international/israel-attack-on-iran-february-28-2026/article70687211.ece>

