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PLAAF: Soon to be the largest and the first Air Force in the world to have a 6th-generation fighter

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When the United States Air Force (USAF) Captain Charles E. "Chuck" Yeager flew his Bell X-1 Glamorous Glennis faster than the speed of sound [1] (Mach 1) on October 14, 1947, it put the US ahead of the rest of the world in a race to the moon. Fifteen years later, it also opened a new frontier for rivalry between the US and the Union of Socialist Soviet Republic (USSR) during the Cold War. The countries tried to match fighter-for-fighter to upend others as the most superior air force in the world.

Slowly, Moscow lost the edge, and the USAF became the most dominating air power in the world. It became the first air force in the world to fly 5th-generation stealth aircraft and the only air force to fly two types of 5th-generation fighter jets – namely F-22 Raptors and F-35 Lightning II. The supremacy is now being challenged by the People's Liberation Army Air Force (PLAAF). Soon, the PLAAF is likely to beat the USAF to become the first air force in the world to fly 6th-generation fighter jet.

So far, the world has been concerned with the PLA Navy's feverish modernisation pace, and the advancement by the PLAAF has been dismissed as the force playing catchup with the US. But the watchers of the PLAAF did not expect the force to have a 6th-generation fighter before the USAF, as they underestimated China's capability to produce new aircraft designs. And Beijing has been churning out one new aircraft design every 10-15 years.

The 2024 edition of the Pentagon's annual report on Chinese military power [2] underscored how the PLAAF has expanded the capabilities of its unmanned aerial systems (UAS). It conceded that they are now comparable to USAF systems. It also noted the strides that the Chinese have made with air-to-air missiles, electronic warfare, bombers, and fifth-generation fighters, but it said that the PLAAF was still playing catch-up with the USAF in terms of combat capabilities.
The complacency could prove detrimental to the USAF's air power dominance as Chinese 6th generation fighter jet development is flying ahead with alarming speed. Numerically, the Chinese Air Force, along with the Navy, fields the largest aviation force in the Indo-Pacific region and the third-largest in the world, with over 3,150 crewed aircraft—not including trainers or drones. More than 2,400 of these are combat aircraft, and the majority of them—around 1,300—are now fourth-generation, according the report.[3]

The modernisation of PLAAF is driven by China's ambition to project power beyond the first chain of islands, including Taiwan, Okinawa, and the Philippines, which China sees as the first line

of defence. The "second island chain" in the Western Pacific runs from south-eastern Japan to Guam and south to Indonesia. This would supplant the US as the dominating military power in the region. In present times, the three major state threats faced by the US – the People's Republic of China (PRC), Russia and the Democratic People's Republic of Korea (DPRK) are in the US INDOPACOM's area of responsibility. Of these three countries, China is the only one with the will and wherewithal to disrupt the international order.

China is modernising its air force, keeping in mind the strategic role air power has played in recent conflicts. President Xi Jinping has set a target for the PLAAF to achieve modernisation as a strategic force by 2035.[4]

F-47 Vs J-36 – The Flight to Induction

The concurrent emergence of the Chinese J-36 and the American F-47 reflects the heightened rivalry between China and the US to dominate the Indo-Pacific. Beijing is increasingly looking to project its power beyond the first island chain and challenge American influence in the Pacific. The J-36 is pivotal to this strategy.

After images of China's 6th-generation fighter jet , 2025prototypes went viral, the US finally awarded the contract for the US Air Force's first 6th-generation fighter jet. Instead of going with Lockheed Martin, the US government announced on March 21, 2025 to go with Boeing. [5] Recently, the outgoing US Air Force Chief of Staff General David W. Allvin announced that the first F-47 Next-Generation Air Dominance fighter will be ready to fly by 2028[6]. The F-47 is key to the US maintaining its air dominance as F-22 Raptors near the end of their operational lifespan.

Keeping an eye on the rapid strides taken by the Chinese Air Force modernisation, the new timeline suggests urgency on the part of the USAF. During his keynote address at the annual Air, Space and Cyber Conference in National Harbor, Md. (south of Washington), Allin said: "We got to go fast." "I got to tell you, team, it's almost 2026. The team is committed to get the first one flying in 2028. … We're ready to go fast. We have to go fast," he added.[7]

Despite moving up the timeline for the first airframe of the F-47, it is 3-4 years behind the Chinese 6th-generation fighter jet J-36 and the other prototype J-XDS (also referred to as J-50 sometimes). Both Chinese aircraft have been recently spotted at a secretive airbase with a massive runway in northwestern China. [8] This suggests that the aircraft has entered its testing phase, and the massive infrastructure that Beijing is building up at the test base indicates its commitment to challenge US's air dominance.

The US has obliquely tried to debunk the advantage the Chinese 6th-generation aircraft development programme has over the American programme. A press release by the American Defense Advanced Research Projects Agency (DARPA) on March 21, 2025, revealed that Boeing and Lockheed Martin designed two X-planes as "risk reduction for the NGAD Platform. These aircraft first flew in 2019 and 2022, logging several hundred hours each."

Unlike the US, which has kept the prototypes under wraps, China has parked its two prototypes out in the open despite knowing that the site is regularly imaged by satellites. The new images of the J-36 point towards commendable design evolution of the aircraft. The second iteration of the J-36 suggests new structural changes over the first. The two new images from November 24, 2025, show new inlets, main landing gear and two-dimensional thrust vectoring across its bank of three engines.[9]

The J-36 stealth fighter developed by Chengdu Aircraft Corporation has a tailless, twin-engine design and is a very large tactical aircraft comparable to US strategic bombers in terms of size.[10] It has a unique side-by-side cockpit configuration, indicative of a two-crew mission management. This could help the aircraft play the role of an airborne command and control node for both manned and unmanned aircraft that can execute missions beyond the first island chain. The design of J-36 indicates a departure of fighter jets from the classic role of dogfighting to optimise air assets by coordinating manned and unmanned systems.

If the timeline of the 5th-generation J-20 'Mighty Dragon' from a technology demonstrator to induction into service is any indicator, the PLAAF will get J-36 years ahead of when the USAF will get the F-47.

Will PLAAF's technological leapfrogging with J-36 counter USAF's numerical advantage?

Based on International Institute for Strategic Studies (IISS) Military Balance reports for 2007 and 2025, the total number of PLAAF fighters, multirole fighters, and ground-attack aircraft shrank from 2,453 in 2007 to 2,065 in 2025. The air forces across the globe have experienced this decline as they move from less expensive second- and third-generation fighters to more expensive but more capable fourth-generation aircraft.[11]

This development can be analysed from the framework[12] presented by Phillip C. Saunders and Erik Quam in 2007 after analysing PLAAF's modernisation. Instead of predicting the right size of the PLAAF's and its force structure, it gives five perspectives that will shape China's decisions about the PLAAF's future force structure. The authors contended that the perception of the

international environment, including a crisis over Taiwan or a conflict with the US, and budget constraints will have a major influence on PLAAF's modernisation.

Their analytic framework focused on potential changes in PLAAF roles and missions, domestic versus foreign procurement, low-tech versus high-tech systems and combat versus support aircraft. A 2019 defence white paper published by China indicated the transition of the PLAAF's missions from territorial air defense to "offensive and defensive operations."[13] The technological capability of the PLAAF is fast approaching the standards of the US Air Force.

The reduction in the number of fighter jets and the advent of futuristic and technologically advanced aircraft is driving the PLAAF's modernisation. And soon it will have the advantage of 6th-generation fighter jet. The modernisation of the fighter jet fleet is supported by the development of its bomber and air-to-air refueller aircraft fleet. [14]

The J-36 can help China leapfrog as a technologically advanced air force. Soon, the PLAAF is going to be the largest air force in the world, and that too equipped with the world's first 6th-generation fighter jet. The critics often highlight that the development of the 6th-generation fighter jets should be evolutionary. But, China's J-36 development stems from the belief that deploying disruptive technology is necessary to neutralise the numerical advantage the US might possess aerially. It is investing in radical innovation that will reshape future conflicts.
At the same time, China is ramping up the production of J-20 fighters. As per reports, it has already built 300 units of the aircraft, and slowly it is switching to Chinese-made engines to power these fighters.

The production rate has increased from 30 to 100 aircraft annually, and conservative estimates suggest that the PLAAF's J-20 fleet could surpass 1000 aircraft by 2030. [15] China intends to have nearly 1,500 by 2035. With five production lines, China is capable of producing a new aircraft every eight days. In comparison, USAF has over 180 F-22s and 630 F-35s. There are plans to acquire 1800 more. Despite entering production two decades before the J-20s, the American F-35 has a low production rate of 140 aircraft per year. [16]

Implications of PLAAF's Capability Boost

China is boosting its anti-access/area-denial capabilities with stealth fighter jets, advanced long-range missiles, and a rapidly growing blue-water navy. Air dominance will help it offset the geographic constraints of the First Island Chain, thereby challenging the US military in the Western Pacific.

China's hegemony over Asia is one of the biggest threats to the US position in the international system. Supplanting the US military as the dominant force in the region will have implications for regional disputes and will also impact other regional actors such as India. The leapfrogging aerial technology will help China to project power beyond its borders and send signals to countries across the globe.

While J-35 has a carrier-based variant, most of the Chinese fighter jets are land-based. But with Beijing converting its Y-20 "Chubby Girl" transport aircraft to refuellers, the range of its fighter jets is bound to get doubled, threatening the US' military positions.[17]

The Y-20, officially called "Kunpeng" after a mythical Chinese bird and nicknamed "Chubby Girl" for its appearance, has superior endurance and air-refueling capability that will increase the range of PLAAF fighter jets much beyond the first island chain, a string of islands encumbering the seas around China. [18] Y-20 is the largest military aircraft currently in production after Boeing's C-17 Globemaster III stopped production in 2015.

In this scenario, the US has no other option but to rely on its allies helping the US to establish air superiority quickly. It can just hope that its 5th-generation US Navy fighter jets and aircraft of allied forces will be able to subdue the PLA Navy and the Air Force in the air.

Notes:

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[18] Ibid.