

China Files



Peoples Liberation Army Navy Ships

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THE PEOPLE'S LIBERATION ARMY NAVY (PLAN)

中國人民解放軍海軍

The People's Liberation Army Navy (PLAN) is the naval branch of the People's Liberation Army (PLA)



Type 054A Frigate hull number 568 named Chaohu, after the city in the eastern Anhui Province

Introduction

With personnel strength of over 250,000, the PLAN also includes the 35,000 strong Coastal Defence Force and the 56,000 man Naval infantry/Marines, plus a 56,000 PLAN Aviation naval air arm operating several hundred land-based aircraft and ship-based helicopters. The PLAN's ambitions include operating out to the first and second island chains, as far as the South Pacific near Australia, and spanning to the Aleutian islands, and operations extending to the Straits of Malacca near the Indian Ocean.

Resource Needs as a Factor in China's Strategy

As China's economy grows, dependence on secure access to markets and natural resources, particularly metals and fossil fuels, is becoming a more significant factor shaping China's strategic behavior. Although China is expected to continue to rely on coal as its primary fuel source, consumption of petroleum and other liquid fuels will likely grow significantly due, in large part, to growth in the transportation sector. For example, automobile ownership in China is expected to rise from 27 million cars in 2004 to nearly 400 million by 2030. China plans to increase natural gas utilization from three percent to eight percent of total consumption by 2010. Similarly, China plans to build some 30 1,000-megawatt nuclear power reactors by 2020, increasing nuclear power from two to six percent of total electricity output – and prompting China's search for foreign uranium supplies.

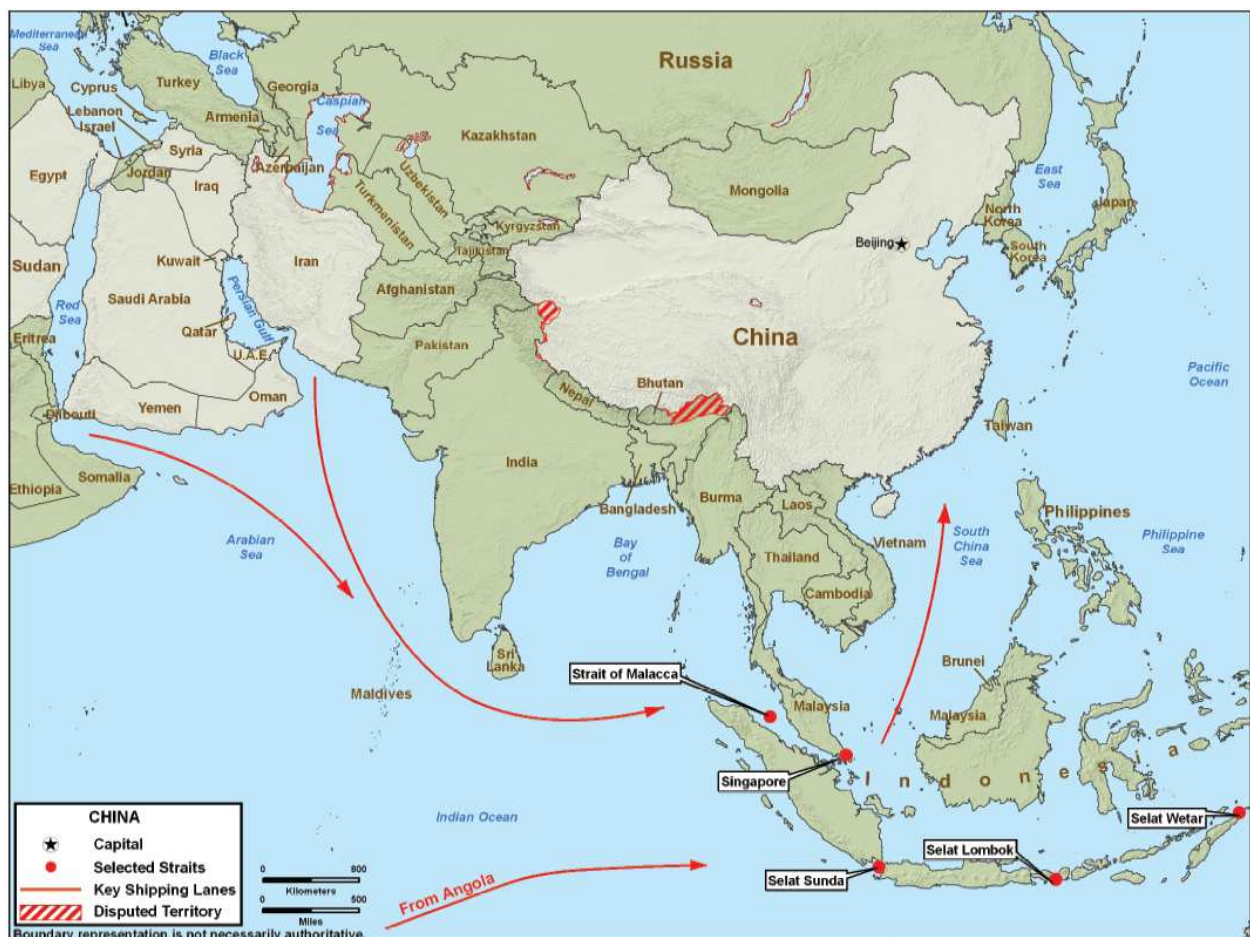
China currently consumes approximately 7.58 million barrels of oil per day and, since 2003, has been the world's third largest importer of oil and second largest consumer, after the United States. China currently imports over 53 percent of its oil (around 4.04 million barrels per day in the first three quarters of 2007), with the vast majority coming by ship and transiting through the Malacca or Lombok/ Makassar Straits. By 2015, China's oil consumption will rise to 10-12 million barrels per day. China is also working with Russia to develop the East Siberia- Pacific Ocean oil pipeline, with a 1.6 million barrels per day capacity, to ensure China's continued access to Russian oil and reduce dependence on sea-borne shipping for oil imports.

In 2004, China began building its strategic petroleum reserve. The first phase, to be completed by 2008, will hold 100 million barrels or the equivalent of 25 days of China's net oil imports. The second phase is planned to

add 200 million barrels, covering approximately 42 days of net oil imports. After 2010, work on the third phase may increase net storage capacity to about 500 million barrels, but without significant improvements to China's transportation and distribution networks, gross storage capacity may prove insufficient to cushion severe disruptions. China's reliance on foreign energy imports has affected its strategy and policy in significant ways. As recently as 1996, China relied primarily upon three countries, Oman, Yemen, and Indonesia, for 70 percent of its oil imports. Since then, China has pursued long-term supply contracts with a diverse range of supplier nations including Chad, Egypt, Indonesia, Kazakhstan, Nigeria, Oman, Russia, Australia, Saudi Arabia, Sudan, and Venezuela.

In 2006, China's top three suppliers were; Saudi Arabia (16 percent), Angola (16 percent), and Iran (12 percent). Through the first nine months of 2007, six percent of China's crude oil imports had come from Sudan. Currently, slightly over half of China's imported oil comes from the Middle East and almost a quarter from Africa. China has also pursued equity positions in a variety of overseas energy assets and investments, although these remain small compared to investments by the international oil majors. China's national oil companies have invested in oil ventures (oil field development, and pipeline and refinery projects) in Kazakhstan, Turkmenistan, Nigeria, Sudan, and in over 20 other countries in North Africa, Central Asia, Southeast Asia, Latin America, and North America.

China's 2006 defense white paper states explicitly in its description of the security environment that "security issues related to energy, resources, finance, information and international shipping routes are mounting." It also defines the PLA's primary tasks as "upholding national security and unity, and ensuring the interests of national development."



China's Critical Sea Lanes. Like many other industrialized East Asian Countries, China is heavily dependent upon critical sea lanes for its energy imports. Over 80 percent of China's crude oil imports transit the Strait of Malacca.



In 2009 the PLA faced an ambition-capability gap. Currently it is neither capable of using military power to secure its foreign energy investments nor of defending critical sea lanes against disruption. They closed this gap by developing: extended-range power projection, including aircraft carrier development; expeditionary warfare; undersea warfare; anti-air warfare; long-range precision strike; maritime C4ISR; expeditionary logistics and forward basing; training and exercises, especially in open water; and a more activist military presence abroad.

Analysis of authoritative speeches and documents suggests China relies on a body of overall principles and guidance known as the “National Military Strategic Guidelines for the New Period” (*xin shiqi guojia junshi zhanlue fangzhen* - 新时期国家军事战略方针) to plan and manage the development and use of the armed forces. Scholarly research suggests that the current “Guidelines” most likely date to 1993, reflecting the impact of the 1991 Persian Gulf War and the collapse of the Soviet Union on PRC military strategic thinking,

The operational, or “active defense,” (*jiji fangyu* - 积极防御) component of the “Guidelines,” posits a defensive military strategy in which China does not initiate wars or fight wars of aggression, but engages in war only to defend national sovereignty and territorial integrity. Once hostilities have begun, according to the PLA text, *Science of Campaigns* (2000), “the essence of [active defense] is to take the initiative and to annihilate the enemy

Offense as Defense

Beijing’s definition of an attack against its sovereignty or territory is vague. The history of modern Chinese warfare provides numerous case studies in which China’s leaders have claimed military preemption as a strategically defensive act. For example, China refers to its intervention in the Korean War (1950-1953) as the “War to Resist the



HQ-9 VLS cells

United States and Aid Korea.” Similarly, authoritative texts refer to border conflicts against India (1962), the Soviet Union (1969), and Vietnam (1979) as “Self-Defense Counter Attacks.” This logic suggests the potential for China to engage in military preemption, prevention, or coercion if the use of force protects or advances core interests, including territorial claims (e.g., Taiwan and unresolved border or maritime claims). Chinese strategic-level military theory establishes seemingly contradictory guidance: “strike only after the enemy has struck,” and “seize the initiative.” Yet, the authoritative work *The Science of Military Strategy* makes it clear that the definition of an enemy strike is not limited to conventional, kinetic military operations. Rather, an enemy “strike” may also be defined in political terms. Thus: *striking only after the enemy has struck does not mean waiting for the enemy’s strike passively...It doesn’t mean to give up the “advantageous chances” in campaign or tactical operations, for the “first shot” on the plane of politics must be differentiated from the “first shot” on that of tactics.* [This section continues] *if any country or organization violates the other country’s sovereignty an territorial integrity, the other side will have the right to “fire the first shot” on the plane of tactics.*

These passages illustrate the duality of Chinese strategic thinking as well as the justification for offensive – or preemptive – military action at the operational and tactical level under the guise of a defensive posture at the strategic level.

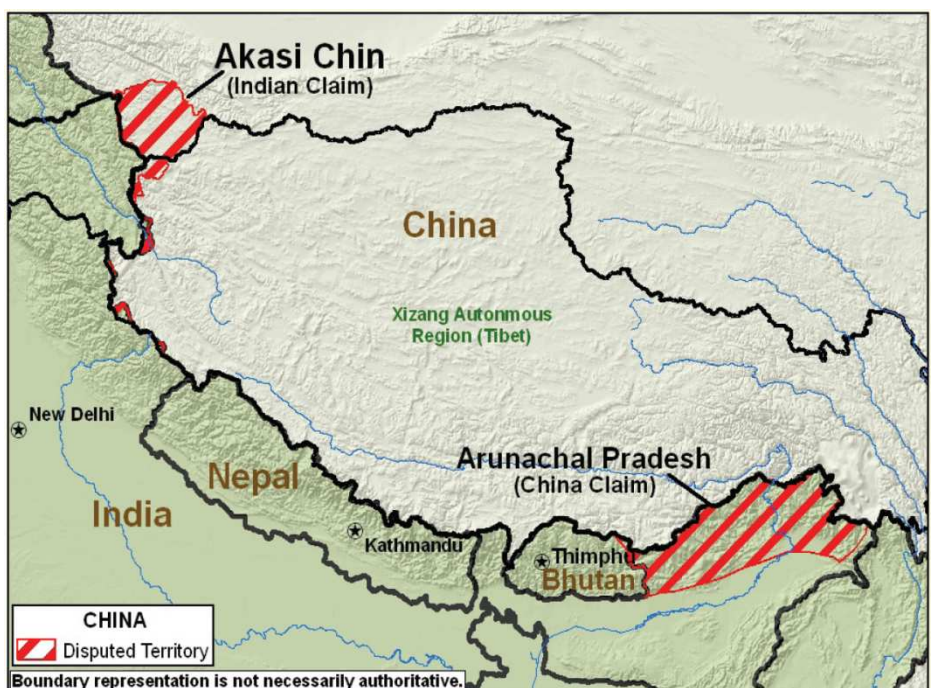
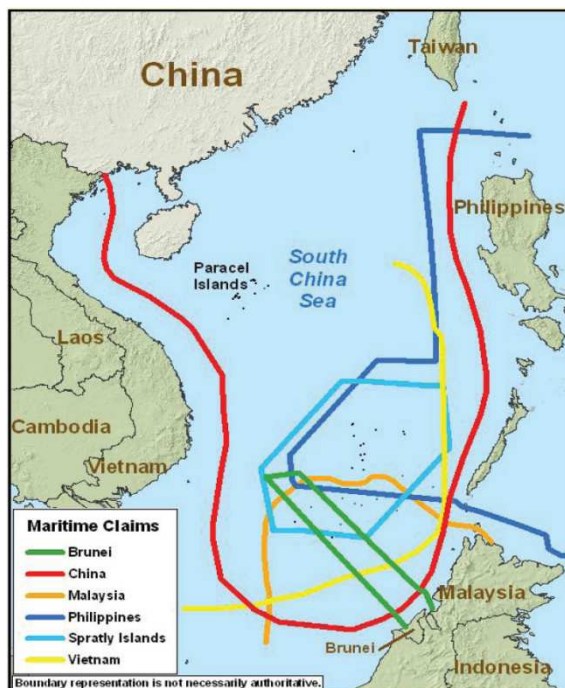


“Weishanhu” (permanent number 887) featuring Advanced alongside replenishment system

China’s Territorial Disputes

Since 1998, China has settled eleven territorial disputes with six of its neighbors. However, disputes continue over exclusive economic zones (EEZ) and ownership of potentially rich oil and gas deposits, including some 7 trillion cubic feet of natural gas and up to 100 billion barrels of oil in the East China Sea, which has contributed to friction with Japan. Japan maintains that an equidistant line should separate the EEZs, while China claims an Extended Continental Shelf beyond the equidistant line to the Okinawa Trench – extending almost to Japan’s shore. In the South China Sea, China claims exclusive sovereignty over the Spratly and Paracel island groups – claims disputed by Brunei, the Philippines, Malaysia, Taiwan, and Vietnam. In December 2007, China announced the establishment of “Sansha City” to assert “indisputable sovereignty” and jurisdiction over the islands of the South China Sea “and the adjacent waterways.”

The South China Sea plays an important role in Northeast Asian security considerations. Over 80 percent of crude oil supplies to Japan, South Korea, and Taiwan flow through the South China Sea – making these countries especially dependant on South China Sea shipping routes. In 2007, Vietnam reported repeated incidents with the PLA Navy in the waters near the Spratly Islands. In April, Vietnam’s coast guard reported that PLA Navy vessels had captured four Vietnamese fishing boats, detaining and fining 41 fishermen; and, in July, a PLA Navy ship fired on Vietnamese fishing vessels, reportedly sinking one ship, killing a fisherman, and injuring several others. Although China has attempted to prevent these disputes from disrupting regional relations, statements by PRC officials underscore China’s resolve to maintain its claims in these areas. For example, on the eve of a broadly successful October 2006 visit to India by President Hu Jintao, PRC Ambassador Sun Yuxi told Indian press, “the whole of what you call the state of Arunachal Pradesh is Chinese territory . . . we are claiming all of that – that’s our position.” In November 2007, despite a general improvement in bilateral relations over the course of the year, PRC troops destroyed an abandoned Indian bunker near the tri-border area in Bhutan, ignoring the protests of Indian officials.



The PLA is developing and implementing supporting doctrine for “active defense” warfare and new operational methods across the various services.

Naval Warfare. The naval component of “active defense” is termed “Offshore Defense Strategy.” The PLA Navy has three main missions: resist seaborne aggression, protect national sovereignty, and safeguard maritime rights. PLA Navy doctrine for maritime operations focuses on six offensive and defensive campaigns: blockade, anti-sea lines of communication, maritime-land attack, anti-ship, maritime transportation protection, and naval base defense.

Ground Warfare. Under “active defense,” ground forces are tasked to defend China’s borders, ensure domestic stability, and exercise regional power projection. PLA ground forces are transitioning from a static defensive force allocated across seven internal MRs – oriented for positional, mobile, urban, and mountain offensive campaigns; coastal defense campaigns; and landing campaigns – to a more mobile force organized and equipped for operations along China’s periphery. China’s ground forces are placing emphasis on integrated operations (especially with aviation forces), long-distance mobility, “quick tempo” operations, and special operations, modeling their reforms on Russian doctrine and U.S. military tactics.

Air Warfare. The PLAAF currently is converting from an over-land, limited territorial defense force to a more flexible and agile force able to operate offshore in both offensive and defensive roles, using the U.S. and

Russian air forces as models. Mission focus areas include air strike, air and missile defense, early warning and reconnaissance, and strategic mobility. The PLAAF also has a leading role in the “Joint Anti-Air Raid” campaign. Underscoring the duality of offense and defense in PLA theory, this campaign is strategically defensive in nature, but at the operational and tactical levels, it calls for attacks against adversary bases and naval forces.

Space Warfare.

Currently, China does not have a discrete space campaign; rather, space operations form an integral component of all campaigns. The PLA’s military theoretical journal *China Military Science*, argues that “it is in space that information age warfare will come into its more intensive points.” Specifically, space-based command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) are key to enabling and coordinating joint operations and winning modern wars. Accordingly, the PLA is acquiring technologies to improve China’s spacebased C4ISR, and is developing the ability to attack an adversary’s space assets. PLA writings emphasize the necessity of “destroying, damaging, and interfering with the enemy’s reconnaissance/ observation and communications satellites,” suggesting that such systems, as well as navigation and early warning satellites, could be among initial targets of attack to “blind and deafen the enemy....”

The January 2007 test of a direct-ascent ASAT weapon demonstrates that the PLA’s interest in counterspace systems is more than theoretical. In addition to the “kinetic kill” capability demonstrated by the ASAT test, the PLA is developing the ability to jam, blind, or otherwise disable satellites and their terrestrial support infrastructure.



In 2003 the CCP Central Committee and the CMC approved the concept of “Three Warfares”

(*san zhong zhanfa* - 三种战法), highlighting the relevance of non-kinetic options in modern war:

- *Psychological Warfare*: the use of propaganda, deception, threats, and coercion to affect the enemy’s ability to understand and make decisions.
- *Media Warfare* : the dissemination of information to influence public opinion and gain support from domestic and international audiences for China’s military actions.
- *Legal Warfare*: the use of international and domestic laws to gain international support and manage possible political repercussions of China’s military actions.

These “Warfares” are being developed for use in conjunction with other military and non-military operations. For example, China has incorporated its Legal Warfare concept into its attempts to shape international opinion and interpretation of the UN Convention on the Law of the Sea, moving away from long-accepted norms of freedom of navigation and territorial limits toward increased sovereign authority out to the 200 nautical mile Exclusive Economic Zone, the airspace above it, and possibly outer space.

Secrecy and Deception in PLA Military

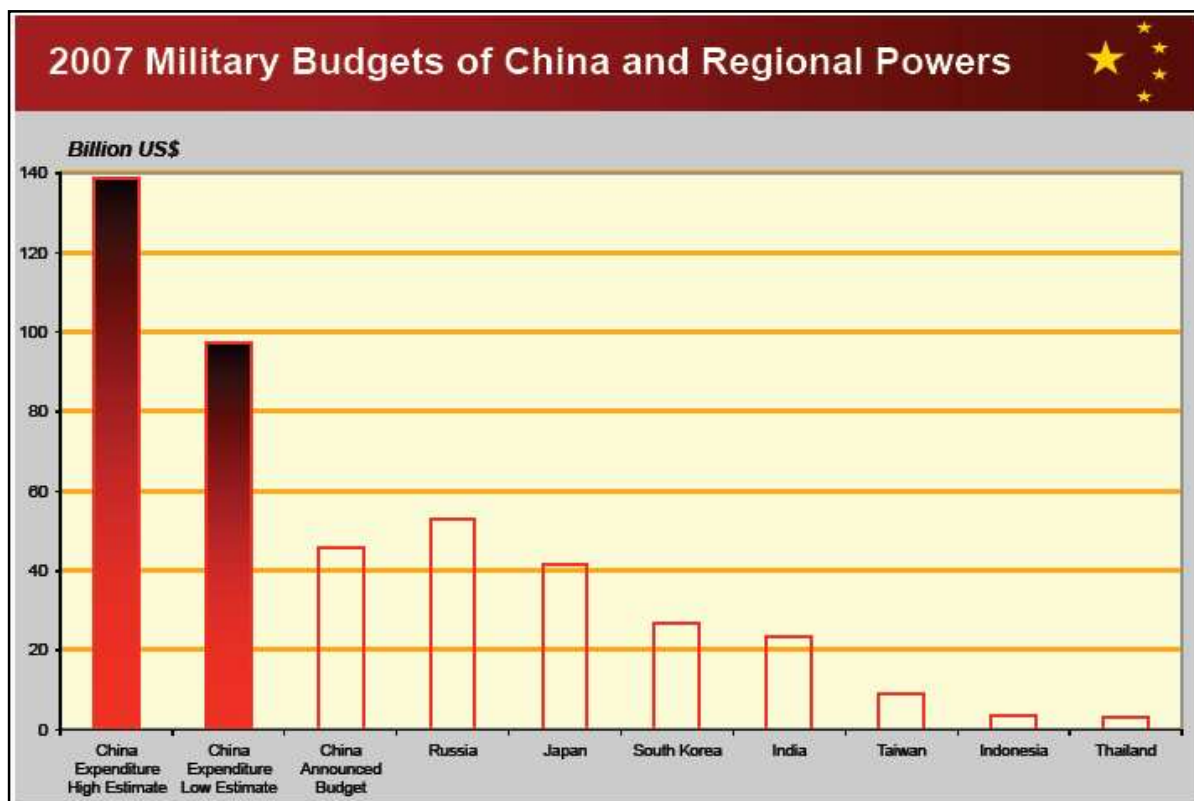
Strategy

PLA doctrinal writings point to a working definition of strategic deception as “[luring] the other side into developing misperceptions . . . and [establishing for oneself] a strategically advantageous position by producing various kinds of false phenomena in an organized and planned manner with the smallest cost in manpower and materials.” In addition to information operations and conventional camouflage, concealment, and denial, the PLA draws from China’s historical experience and the traditional role that stratagem and deception have played in Chinese doctrine. Recent decades have witnessed within the PLA a resurgence of the study of classic Chinese military figures Sun Zi, Sun Pin, Wu Qi, and Shang Yang and their writings, all of which highlight the centrality of deception.

Assassin’s Mace Programs

As part of China’s asymmetric warfighting strategy, the PLA has developed capabilities, referred to as “assassin’s mace” (*sha shou jian* - 杀手锏) programs, designed to give a technologically inferior military advantages over technologically superior adversaries, and thus change the direction of a war. Since 1999, the term has appeared more frequently in PLA journals, particularly in the context of fighting the United States in a Taiwan conflict.

It is unclear what platforms are specifically designated as “assassin’s mace.” However, descriptions of their intended use and effects are consistent with PLA asymmetric warfighting strategy. In this context, systems designated as “assassin’s mace,” are most likely a mixture of new technologies and older technologies applied in innovative ways.



Chinese PLAN Inventory 2009

Type	Nr. Planned/ Building	Nr. Active	Nr. in Reserve
Submarines			
Nuclear Ballistic Missile Submarines	3	3	
Nuclear Attack Submarines	4-6	5	2
Conventional Ballistic Missile Submarines	0	1	
Conventional Attack Submarines	1	47	
Total Submarines	8-10	56	2
Principal Surface Combatants			
Aircraft Carriers	3	0	
Destroyers		26	
Frigates	1	51	
Total Principal Surface Combatants	4	77	
Coastal Warfare Vessels			
Missile Boats		132	110-120
Torpedo Boats		20	150
Gun Boats		160	100
Submarine Chasers		75	20
Total Coastal Warfare Vessels		~387	~380-390
Amphibious Warfare Vessels			
Landing Platforms	1	1	
Landing Ships		83	
Landing Craft		370-480	
Total Amphibious Warfare Vessels	1	~454-564	
Mine Warfare Vessels			
Mine Warfare Ships		27	42
Mine Warfare Drones		4	26
Total Mine Warfare Vessels		31	68
Total Auxiliary/Support Vessels		~153	
Total All Vessels	12+	~1158-1268	450+
Total Combat Vessels	12+	~631	420+

THE SHI LANG

The Russian was renamed the Shi Lang (after the Chinese general who took possession of Taiwan in 1681, the first time China ever paid any attention to the island) and given the pennant number 83.



The Admiral Kuznetsov

Class and type:	Admiral Kuznetsov-class aircraft carrier
Displacement:	33,000 t (32,000 long tons) currently 53,000 to 55,000 t (52,000 to 54,000 long tons) standard 66,000 to 67,500 t (65,000 to 66,000 long tons) full load
Length:	1,000 ft (300 m) o/a 900 ft (270 m) w/l
Beam:	240 ft (73 m) o/a 125 ft (38 m) w/l
Draft:	36 ft (11 m)
Propulsion:	Currently no engines are installed As designed: Steam turbines, 8 boilers, 4 shafts, 200,000 hp (150 MW) 2 × 50,000 hp (37 MW) turbines 9 × 2,011 hp (1,500 kW) turbogenerators 6 × 2,011 hp (1,500 kW) diesel generators 4 × fixed pitch propellers
Speed:	32 knots (37 mph; 59 km/h)
Range:	3,850 nmi (7,130 km) at 32 kn (37 mph; 59 km/h)
Endurance:	45 days
Complement:	1,960 crew 626 air group 40 flag staff 3,857 rooms
Armament:	

HQ-9 long-range air defense missile, YJ-91

As designed:

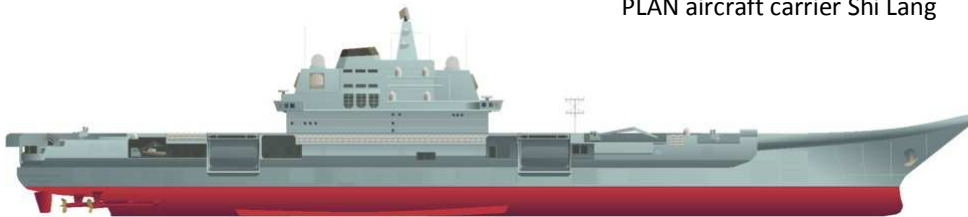
- 8 × AK-630 AA guns (6×30 mm, 6,000 round/min/mount, 24,000 rounds)
- 8 × CADS-N-1 Kashtan CIWS (each 2 × 30 mm Gatling AA plus 16 3K87 Kortik SAM)
- 12 × P-700 Granit SSM
- 18 × 8-cell 3K95 Kinzhal SAM VLS (192 vertical launch missiles; 1 missile per 3 seconds)
- RBU-12000 UDAV-1 ASW rocket launchers (60 rockets)

Aircraft carried: 36 x Su-33 or J-10 plus 14 helicopters



Comparison of carrier sizes

PLAN aircraft carrier Shi Lang



INS Vikramaditya, India. Est. 2012



Vikrant class, India. Est. 2012



Queen Elizabeth class, UK. Est. 2014



Gerald R. Ford class, USA. Est. 2016



THE PROJECT 956 SOVREMENNY CLASS MISSILE DESTROYER



Sovremenny class missile destroyer Ningbo (139)

The Project 956 Sovremenny class missile destroyer was introduced in the mid-1980s by the Soviet Navy as a counter to the U.S. Navy's surface warships, in particular the aircraft carrier battle groups and the Aegis cruisers. In 1996, the PLA Navy decided to purchase two unfinished ex-Russian Navy Project 956 destroyers worth US\$800 million. They are hull #18, ex-Soviet Navy Vazhny and later renamed as Yekaterinbugr (698) by the Russian Navy, with two-thirds of building complete, and hull #19, ex-Russian Navy Alexandr Nevsky with only one-third complete. Both ships were laid down in the late 1980s by the North Shipyard in St. Petersburg and their construction was suspended in 1995 due to lack of funds. The first hull, renamed Hangzhou (136), was delivered in December 1999, followed by the second hull renamed Fuzhou (137) in December 2000.

In 2002, the PRC signed a contract with Russia to purchase an additional two improved Project 956EM destroyers worth US\$1.4 billion. The first hull, Taizhou 138, was launched in April 2004 and delivered on 28 December 2005. The second hull, Ningbo (139) was launched in July 2004 and delivered in September 2006.

The Sovremenny class destroyers provided a balanced platform that vastly exceeds the capabilities of Chinese domestic designs at the time of delivery. Their displacement exceeded that of most Chinese indigenous surface warships, indicative of the overall improvement in combat potential. The ship also has longer endurance compared to the Chinese indigenous destroyers. The PLA Navy hoped to use these ships to fulfil the gap in its combat capability caused by the delay in developing indigenous designs.

The Sovremenny class is a typical Cold War-era Soviet design, with a large amount of weapon systems and sensors, as well as sophisticated electronic warfare and countermeasures (EW/ECM) equipments. The ship has a tall, large profile with all weapon systems and sensors exposed externally, increasing the ship's radar cross section significantly. The destroyer has no infrared signature reduction measures. Early variant of the Sovremenny class in service with the Russian navy often produced heavy black smoke from its funnel, but this has been improved on later ships possibly due to the replacement of improved steam turbines.



The stern view of the Project 956EM. The stern 130mm gun on the original Project 956 has been removed. Two Kashtan gun/missile air defence systems replaced the original four AK-630 CIWS (Source: Chinese Internet)

Missiles

The Sovremenny class has eight 3M-80E Moskit (NATO codename: SS-N-22 Sunburn) ramjet-powered, supersonic, sea-skimming anti-ship cruise missiles (ASCMs), which can attack surface targets 120km away at a speed of Mach 2.5. The missile is armed with a 300kg high-explosive warhead or a 20kT nuclear warhead. The launch weight is 4,000kg. The destroyer has two 4-cell launcher installed port and starboard of the forward superstructure and set an angle of 15 degree. China received 50 3M-80E Moskit (BATO codename: SS-N-22 Sunburn) anti-ship missiles in mid-2000, and the first test launch took place in 2001. The anti-ship missiles equipped by the Project 956EM is said to be improved 200km-range 3M80MBE variant.

Two single air defence missile launchers are installed on the raised decks behind the 130mm main guns. The launchers can fire the 9M38 (NATO codename: SA-N-7 Gadfly) semi-active, radar-homing, medium-range air defence missile. The missile uses the ship's Top Plate 3D circular scan radar for target tracking, and the Front Dome (three radar for each launcher, each radar with two guidance channels) indication radar for missile guidance. Up to three missiles can be aimed simultaneously. The range is up to 25km against aircraft and 15km against anti-ship cruise missile. The ship carries 48 9M38 missiles.

Guns

The basic variant Project 956 has two (one front, one rear) 130mm AK-130-MR-184 main guns supplied by the Ametist Design Bureau and the Frunze Arsenal Design Bureau in Saint Petersburg. Controlled by fire-control radar and TV sighting, the gun can be operated fully automatically from the radar control system, or under autonomous control using the turret-mounted Kondensor optical sighting system, or fired manually. Rate of fire is between 20 and 35 rounds/min. For air defence the ship was equipped the destroyer has four six-barrel 30mm AK-630 close-in weapon systems (CIWs). The maximum rate of fire is 5,000 rounds/min. Range is up to 4,000m for low flying anti-ship missiles and 5,000m for light surface targets. The gun is equipped with radar and television detection and tracking.

On the improved Project 956EM the aft AK-130 main gun was removed. The four AK-630 CIWs were replaced by two sets of Kashtan short-range air defence gun/missile systems. Each Kashtan system comprises a 3R86E1 command module and two 3R87E combat modules. Each 3R87E combat module has two 30mm GSh-30k six-barrel automatic guns (range 0.5~4km) and two SA-N-11 air defence missiles, which are armed with a 9kg warhead and have a range of 1.5~8km.



Taizhou (138) was one of the two newly-built Project 956EM destroyers China ordered from Russia in 2002

As a multirole destroyer mainly designed for the surface strike mission, the Sovremenny class is only equipped with basic self-defence antisubmarine weapons. The ship lacks the large and expensive towed sonar array and antisubmarine missile system that are commonly found on US and Japanese warships. The destroyer is equipped with two twin-barrel 533mm torpedo tubes and two six-barrel RBU-1000 antisubmarine rocket launchers, with 48 rockets. The rocket is armed with a 55kg warhead and has a maximum range of 1,000m.

Anti-Submarine Warfare

The destroyer has two double 533mm torpedo tubes and two six-barrel RBU-1000 anti-submarine rocket launchers, with 48 rockets. Range is 1,000m. The rocket is armed with a 55kg warhead.

Sensors, ECM and C3I

The air search radar is a FREGAT-MAE (NATO reporting name: Top Plate) 3D air search radar operating at E/H-band. The radar has a maximum detect range of 230km to aircraft and 50km to sea-skimming missile. Fire control radars include a MR-184E (NATO reporting name: Kite Search) operating at H/I/K-band (for 130 mm gun control), two MR-123-02 (NATO reporting name: Bass Tilt) operating at H/I-band (for 30mm AK-630 CIWS). There is also a Mineral-E (NATO reporting name: Band Stand) for the datalink of the 3M-80E/S-N-22 anti-ship missile, six (each with two channels) MR-90 Orekh (NATO reporting name: Front Dome) operating at F-band for the control of the guidance of 9M38 air-defence missile.

There are also a Bell Nest, two Light Bulb, and two Tee Pump datalinks. For countermeasures the ship is fitted with eight PK10 and 2 PK2 chaff launchers, and four Football and six Half Cup laser warning receivers. The MGK-335 fixed sonar suite includes Bull Horn active and Whale Tongue passive hull-mounted, medium frequency search and attack sonar.

The combat information management system can provide simultaneous tracking of several targets on data from active/passive sensors of the ship and organic helicopter as well as from other ships of the task force and patrol aircraft.

Aviation

The ship's helicopter pad accommodates one Ka-28 anti-submarine warfare helicopter, NATO codename Helix. The helicopter is supplied by the Kamov JSC of Lyubertsy, Moscow and Kimertau Research and Production Association, Bashkortastan. The helicopter can operate in conditions up to sea state 5 and up to 200 km from the host ship. The helicopter is equipped with radar, sonar antisubmarine torpedoes, antisubmarine missiles, depth charge rockets and depth charges. The aviation fuel stock onboard the host ship is 5 tonnes.

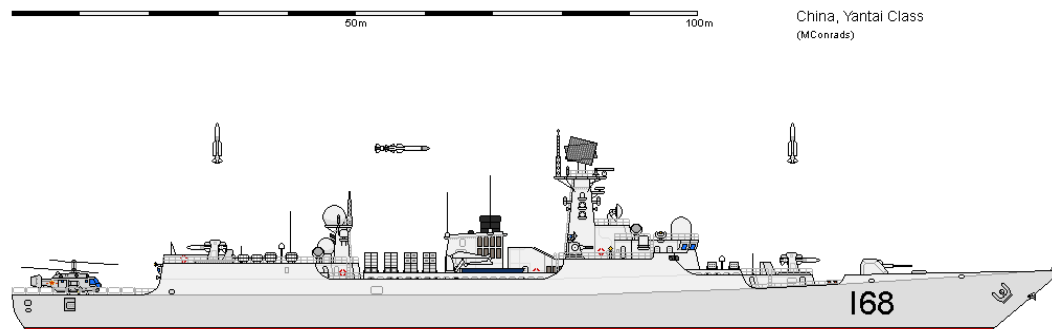
Propulsion

Main propulsion include four KVG-3 high-pressure steam boilers, 50,000hp TV-12-4 steam turbines, driving two fixed pitch propellers. Electric power is supplied by two 1,000kW steam turbo-generators and four 600kW diesel generators. The ship has a maximum speed of 32 knots and an economic speed of 18 knots.

No.	Name	Shipyard	Fleet	Launch	IOC	Type
136	Hangzhou	North Shipyard	East Sea	Apr 81	Dec 99	Project 956
137	Fuzhou	North Shipyard	East Sea	1982	Dec 00	Project 956
138	Taizhou	North Shipyard	East Sea	27 Apr 04	28 Dec 05	Project 956EM
139	Ningbo	North Shipyard	East Sea	23 July 04	Sept 06	Project 956EM



TYPE 052B OR GUANGZHOU CLASS DESTROYER



The Type 052B or Guangzhou class destroyer (NATO reporting name: Luyang I class) is a class of multirole missile destroyer built by the People's Republic of China. Two ships have been built, with Guangzhou (168) and Wuhan (169) both being commissioned into the PLAN in July 2004. This class features a stealthy hull and significantly improved air defence systems, an area that had been a major weakness on previous ships designed by China. These ships represent a major improvement over the older generation vessels and reflects PLAN's need to have a modern destroyer.

The Type 052B is built with considerable Russian technology including the Russian-made 9M38 Buk-M1-2 (NATO codename: SA-N-12 Grizzly) air defence missile system, an extremely effective air defence system with a range of 38 km. Most military analysts expect the Guangzhou class to be similar to the Russian Sovremenny class destroyer in terms of general performance. The displacement of the Type 052B is 5850 tons. The ship features a "low point" design combined with radar absorbing paint to reduce radar signature. The ship's funnel incorporates cooling devices to reduce infrared signatures. The stern flight deck can host a Kamov Ka-28 ASW helicopter.

The Type 052Bs are equipped with two missile launchers, one forward and one aft on the ship. These launchers can launch the SA-N-12 Grizzly Surface-to-Air Missile. Each launcher has two dedicated MR-90 Front Dome fire control radars and carries a total of 48 missiles. They also have 4 quad YJ-83 Anti-Ship Cruise Missile launchers located amidships. For guns there is a 100mm cannon in 'A' position and this is the first PLAN vessel to be equipped with a Close-In Weapons System, or CIWS. For sub-surface threats, she is armed with 2 triple 324mm Yu-7 Anti-Submarine torpedo tubes and two Type 75 twelve-barrel 240mm antisubmarine rocket launchers. The Type 052B is equipped with four 18-barrel Type 724 chaff launchers for part of its self-defense suite.

Radar

The Type 052B uses a Fregat-MAE-5 (Top Plate) 3D search radar, mounted at the top of the forward mast. Four MR90 Front-Dome radars provide fire control for the SA-N-12 missiles. A Type 344 fire control radar controls the main gun. A bandstand radar provides fire control for the YJ-83 ASCM missile.

Specifications

- Unit cost - around US\$400 million per ship by 2004's price
- Ships - Guangzhou (168) and Wuhan (169) as of 2006
- Propulsion - 2 x Zorya-Mashproekt DN80 gas-turbines
2 x MTU Friedrichshafen 12V 1163TB83 diesels

- Length - 153 meters
- Beam - 16.5 meters
- Draft - 6 meters
- Displacement - 6,500 metric tons
- Speed - 30 knots
- Crew - 250 (40 officers)

Combat Data System - ZKJ-7 information processing system designed by the 709th Institute (reported speed: 100 MB/s)

Data link: HN-900 (Chinese equivalent of Link 11A/B, to be upgraded)

Communication: SNTI-240 SATCOM

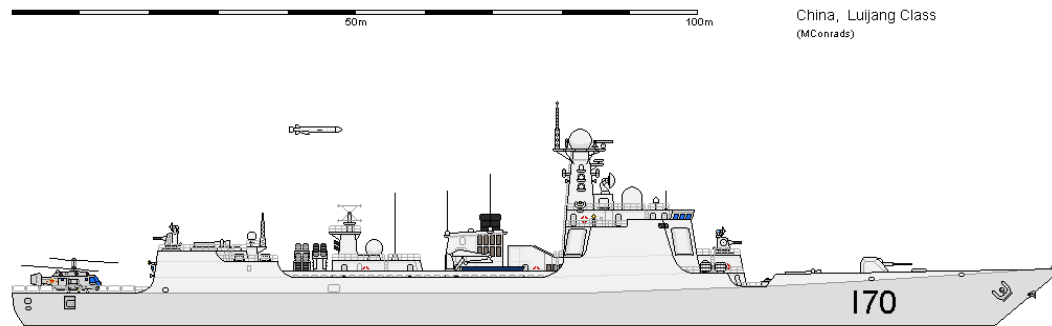
Armament

- 16 x YJ-83 SSM
- 48 x SA-N-12 SAM in 4 x 12 magazine
- 1 x 100 mm gun
- 2 x 30 mm Type 730 CIWS
- 2 x Triple 324 mm ASW torpedo tubes
- 2 x Type 75, 12-barrel 240 mm antisubmarine rocket launchers (range 1200 m, 34 kg warhead)
- 4 x 18-barrel Type 726-4 decoy/chaff launchers
- Aviation: 1 Kamov Ka-28 ASW helicopter



TYPE 052C DESTROYER

The Type 052C destroyer NATO code name Luyang II class, often referred to as Lanzhou class after the lead ship name.



The destroyers feature an APAR-style active phased array radar system with four statically mounted antennas providing continuous 360-degree coverage and multiple missile direction capability for the vertically launched HHQ-9 long-range air defence missiles. This class represents China's first true long-range fleet air defence capability and is similar in outward appearance to the US AEGIS air defence system.

Following the launch of two Type 52B multirole missile destroyers in 2002, Shanghai-based Jiangnan Shipyard started to build two Type 052C destroyers based on the same hull design, but with more advanced weapon systems and sensors specifically for fleet air defence role. The first-of-class Lanzhou (170) was laid down in late 2002, launched on 29 April 2003, and commissioned in July 2004. The second ship, Haikou (171) was launched on 30 October 2003 and entered service in 2005.

Unlike the Type 052B destroyer which is equipped with a mixture of Russian and indigenous systems, the Type 052C is completely based on indigenous technology (apart from a few sensors). The most notable feature is the indigenously developed four-array multifunction active phased array radar Type 348 Radar (PAR) similar to the Netherlands APAR system. Additionally, the destroyers are also fitted with the vertical launch system (VLS) for the indigenous HQ-9 long-range air defence missile system, and the latest YJ-62 (C-602) anti-ship missile, both of which are not seen on previous Chinese surface warships.

There is a stern helicopter flight deck and a hangar to accommodate one Russian Ka-28-A or one Z-9 (Chinese version of the Eurocopter Dauphin AS 365N) ASW/SAR helicopters. Most Chinese warships use the command and control system derived from the French Thomson-CSF TAVITAC, but the Type 052C has a newly developed system with improved processing power to engage anti-ship missile threats. Another reason for the increased processing capability is to accommodate the Ka-28 ASW helicopters which lack the onboard processing capability to process the information gathered, so the information has to be passed to the host ship for processing and then passed back to the helicopter via data links.

Missiles

A total of 48 HQ-9 naval air defence missiles are carried in and launched from eight 6-cell vertical launch systems (VLS). In contrast to previous reports which suggested that the system may be based on Russian technology, the VLS on board the Type 052C appears to be an indigenous design. Unlike the Russian-style revolver VLS, each missile launch cell of the Type 052C VLS has its own lid, but it does use the same cold-gas ignition method. The missile system uses the so-called 'cold launch', in which the missile is first ejected from the launch tube, and then ignites its rocket engine at low altitude. This launch style avoids the complex flame and gas exhausting pipes on the Western-style 'hot launch' VLS. In comparison to the Russian cold-launch system, the Chinese VLS eliminates the revolver design by providing a lid for every launching tube, which can independently fire the missile inside because each has a cold-gas ignition chamber directly below. The Chinese

claim the result is simplified maintenance, decreased size, weight, and cost; and, due to the elimination of the revolver mechanism, the power consumption is also reduced in comparison to the Russian revolver design.

The HQ-9 is China's new generation medium- to long-range, active radar homing air defence missile with a maximum range of 125km. The missile is an indigenous design while incorporating some Russian S-300 rocket technology. The naval HQ-9 appears to be identical to the land-based variant.

The destroyer also carries two 4-cell YJ-85/C-805 or YJ-62/C-602 (disputed) anti-ship missile launchers installed between rear mast and the helicopter hangar [2]. Unlike previous YJ-8X/C-80X series anti-ship missiles which are launched from box-shape launchers, the missile is launched from a new tube-shape launcher. The missiles are guided by the Band Stand radar installed on top of the bridge and a Light Bulb datalink forward of the hangar. The Band Stand targeting radar suggests some similarity with the 3M80 Moskit missiles used on the Sovremenny-class.

Guns

The Type 052C has two (one front, one rear) Type 730 close-in weapon system (CIWS) designed by 713th Research Institute for short-range air defence. Two seven-barrel 30 mm Type 730 CIWS are located both sides behind the bridge. The weapon system has a maximum rate of fire of 4,600~5,800 rounds/min.

The ship has a Type 210 100 mm naval gun developed by 713 Institute on the basis of the French Creusot-Loire T100C design. The gun can be used against surface targets and air targets such as aircraft and low speed missile, with a maximum rate of fire of 90 rounds/min. The gun can be operated in fully automatic mode from the radar control system, from the shipborne optical sighting system, or laid manually. The turret design incorporates strong radar cross-section reduction features. China has indigenously developed various guided projectiles for the 100 mm gun, such as the laser guided projectiles based on the similar projectiles developed for Chinese main battle tanks, but it is highly unlikely that these guided projectiles are in service on board the destroyer since the laser designators needed have not been observed yet. Chinese also claimed that infrared guided projectiles for the 100 mm (3.9 in) gun was also successfully developed, but trials revealed that the rate of fire would be significantly decreased because the loading system must switch between different rounds when the guided projectiles and the unguided projectiles are mixed in the same ammunition drum.

ECM

For expandable decoys, the destroyer is armed with a fully digitized and solid state Type 726-4 decoy launching system that is consisted of four launchers installed on the front deck and a control console, though this is not necessary since the system can be fully automatic in combat via the combat data system. The system can also be directly linked to other subsystems on board such as sonar control consoles but it can not be confirmed if this capability is incorporated or not. The system incorporate modular design and during past exhibitions in China, for example, at least three types of displays had been shown, including CRT, LCD and plasma displays. Each launcher is consisted of 18 launching tubes arranged in three rows with six tubes in each row, and a variety of decoys and chaffs could be deployed.

As a secondary role, the system is armed with ASW rockets which could be used against enemy submarines when needed, but this function is mostly used as a defense against torpedo and frogmen. The other alternative function of the Type 726-4 decoy launching system is that the system can be used for shore bombardment.

The last mission of the system is photo / electro-optical reconnaissance. Chinese manufacturers had revealed in the past defense exhibitions a variety of electro-optical camera / sensor packages for rockets, as a cheaper alternative of gun-launched systems since the latter had to sustain much greater g-force. Chinese manufacturers claimed that such systems were to provide images in areas such as behind hills where the line-of-sight of on board electro-optical sensors were blocked. The disadvantage of such rocket launched system is that the range is much shorter than that of UAV, but Chinese manufacturers had claimed that the unit cost of UAV was much greater and could not be equipped in large numbers like rockets. Despite the Chinese

manufacturers' advertisement (some even with pictures of Type 052C destroyers), there is no evidence either inside China or outside China that confirms such system is being carried on board.

The launchers themselves could be incorporate as part of larger system with automatic loading systems, but based on the released photos of the destroyer, this does not appear to be the case and the system seemed to need to be loaded manually instead. Additionally, the destroyers is armed with a variety of electronic warfare arrays and the Chinese had claimed the on board ESM gear is capable of 100% interception rate. Additionally, ECM mission can be also carried out via UAV's when UAV's are carried.



The Lanzhou. This class is equipped with a variety of radars, sonars and electro-optical sensors.

Radars

The ship is the first Chinese ship fitted with a multifunction active phased array radar with four antenna arrays, with a reported name Type 348 Radar. China originally imported a Ukrainian C-band active phased array radar for evaluation, but decided that the radar did not meet the Chinese requirement. Instead, China adopted a domestic S-band multifunction active phased array radar with four antenna arrays. The radar is indigenously developed by the Research Institute of Electronic Technology (also more commonly known as the 14th Institute) at Nanjing, Jiangsu province, and it is a successor to the 14th Institute's earlier indigenously developed Type H/LJG-346 SAPARS (Shipborne Active Phased Array Radar System) that was completed in 1998. Chinese discovered that the S-band adopted by the American AN/SPY-1 passive phased array could be better suited for the requirements for the active phased array radar as well. The radar has reported name of Type 348 Radar and a maximum range of 450 km, and a maximum resolution of 0.5 metres.

Ukraine provided technical expertise in integrating the active phased array radar with ESM and the anti-stealth radar with Yagi antenna, which in turn, is a successor to the earlier Type 517H-1 (NATO codename: Knife Rest) long-range 2D air search radar. This metre-wave radar operates in the VHF band and is designated as Type 517M by the Chinese. Like the Type 348 Radar, this radar is also totally indigenous, and Chinese claim that it has better performance than the similar land-based JY-27 radar, which its accuracy is 150 meters for distance, one degree for angle, and its maximum range is 330 km. Type 517M radar, in contrast, has a maximum range of 350 km, but China has not released the details of its accuracy.

A Russian MR331 Mineral-ME (with NATO reporting name Band Stand) fire-control radar (for anti-ship missile and for the main gun as its secondary mission) was capable of over the horizon targeting, and it has been installed on other newly built PLAN ships including Type 054A frigate. The Type 344 Radar is installed to provide fire control for the main gun, and for the Type 730 CIWS as its secondary mission in case the locally mounted fire control radars for the CIWS malfunctioned or damaged in battles. Two locally mounted LR66/TR47C radars derived from Type 347 Radar provide fire control for the Type 730 CIWS, and although these radars are also capable of providing fire control for the main gun, it is not known if such capability has been incorporated via the combat data system. Type 364 Radar is installed in a radome for air and surface search, and this radar acts as a supplement of the Type 348 Radar and as a provider of target information for SAM and CIWS, while also have the anti-ship missile targeting as its secondary mission.



The Haikou

Electro-optical (Optronics)

The OFC (Optical Fire Control) -3 electro-optical fire control system is a modular design that is consisted of a laser range finder, a color TV camera, and an IR camera, and the laser range finder can be replaced by a laser designator (for the laser beam riding SAM), the TV camera can be replaced by a night vision camera, and the IR camera can be replaced by an ImIR, at higher cost. Development to incorporate the dual band IR, night vision camera, and the color TV camera has been successfully completed, but it is unclear if these newly developed versions will be installed on any of the ships. The OFC-3 optronics is designed by the Central China Optronics (electro-optical) Research Institute. Although the advanced versions have been successfully tested, only the most basic version have been installed on board Type 052C class, as acknowledged by the developer, and

domestic Chinese media rumored the main reason was to reduce the cost. However, the adaptation of the most basic version of OFC-3 results in great decrease in the performance and effectiveness of the main gun, because without the laser designator needed, laser beam riding and semi-active laser guided projectiles can not be deployed for the Type 210 100 mm naval gun.

The OFC-3 Electro-optical system is further supplemented by the IR-17 Infrared Surveillance Device optronics, which is an infrared system only, and like OFC-3 system, it has also been installed on Luzhou class destroyer and Guangzhou class destroyer. The IR-17 system is usually installed on the forward mast just below the 3-D air search radar, and it is consisted of three parts: sensor head, operator console and electronic cabinet that contains other electronics including power supply. In comparison to OFC-3, more information is released on IR-17, including:

- * Sensor head weight: < 160 kg
- * Control console weight: < 390 kg
- * Electrical cabinet weight: < 300 kg
- * Sensor head size: 0.6 m x 0.9 m x 1.1 m
- * Control console size: 0.72 m x 1.05 m x 1.65 m
- * Electrical cabinet size: 0.6 m x 0.7 m x 1.65 m
- * Accuracy: 3 mrad
- * Range against sea-skimming anti-ship missile with 0.1 square meter radar cross section: > 8 km
- * Range against cruise missile: > 20 km
- * Range against aircraft with 3 square meter radar cross section: > 30 km

The JRSCCS integrated command and control system is used to direct both the OFC-3 and IR-17. In addition, the system can also be used to direct all on board weaponry and sensors, though as only an emergency backup measure for the combat data system, which JRSCCS integrated command and control system is linked to. The JRSCCS system is full automatic and only require a single operator when necessary. The operator console of the JRSCCS is designated as JRMC and is consisted of two multifunction color displays and a joy stick, and up to five JRMC consoles can be deployed when required. According to the developer, such five consoles arrangement as the emergency backup of combat data system is located separately from the main combat information center where the combat data system is located to ensure survivability, but it is not known for sure if this configuration had been adopted for Type 052C destroyer.

Like the H/ZBJ-1 combat data system on board, the JRSCCS is distributed and redundant and reflects both Russian and Western influence. From the Russian/Soviet tradition, each sensor handles as much of its own data processing as possible. While this potentially allows the design of individual system components to be simplified, the Chinese followed the Western tradition by ensuring central components can still process all information from the sensors in the event of sensor hardware malfunction. The cost of such redundancy is such that half the price of the ship is in its C4I systems. Another Western design tradition incorporated was the use of an open architecture software design.

Sonar

Like the Sovremenny class destroyers, the ASW weaponry on board Type 052C destroyer is mainly for self-defense, since it is a class of air-defense destroyer. The ship is equipped with hull mounted SJD-8/9 medium-frequency hull-mounted active / passive sonar, which is a development of French DUBV-23 sonar, and the improvements in both the hardware and the software over the original French design enabled the sonar to be used as a torpedo approaching warning system as well. When in active mode, the range of the hull mounted sonar is at least 12 km or greater, and when in passive mode, the range is at least 60 km or greater, a 20% increase to the 50-km maximum range of the hull mounted sonar on board Sovremenny class destroyers. Encrypted underwater telephone and other communication gears are installed on board to enable this class to be better coordinated with submarines in joint maneuvers.

Although both variable depth sonar such as ESS-1 medium-frequency VDS (the Chinese development of French DUBV-43 VDS) and towed array sonar were successfully tested on board, these were abandoned because incorporating these extra sonars would lead to significant redesign of the hull and increased cost. Despite the

fact that the extra processing capability reserved in the combat data system for the towed sonar and VDS when needed, it is highly unlikely that the towed sonar and VDS would ever be incorporated in the near future. The high frequency obstacle / mine avoidance sonar once originally planned to equip this class failed to materialize due to the same financial concern of reducing the cost.

UAV

According to the advertisements Chinese released during various defense / aerospace / electronic exhibitions in the past, conversion kits have been developed for destroyers to deploy multiple UAVs. and the developers of both the JRSCCS and the combat data system have claimed that their products could handle the information needed to control UAVs. However, it is highly unlikely that any long range UAVs will ever be deployed on board this class because the complete handling system to support these large UAVs would need the entire hangar, thus displacing the only helicopter on board. Chinese governmental media, however, did release photos of a variety of propeller driven light UAVs being launched from destroyers and claimed that these light UAVs could be deployed on every destroyer class currently in Chinese service, and some of the pictures have depicted some UAVs carry laser targeting pods, providing guidance for laser guided projectiles. However, as of mid-2007, it still can not be confirmed that if any light UAVs has been on board Type 052C class on a regular basis. The lack of regular deployment of UAVs on board only seems to confirm the claim that the laser guided projectiles for the main gun are not deployed due to the lack of associating guidance equipment. On August 17, 2008, another type of UAV named as Hummingbird carrying electro-optical pod were deployed on board for the successful test of a new data link developed by China Northern Co. (中国北方公司). The new data link is a two-way real-time encrypted data link designed to replace the current HN-900 data link, and it is designated as NCTDL, short for Naval Common Tactical Data Link. The new data link is claimed by many Chinese to be at least equal to the Link 16, and even comparable to Link 22, but such claims have yet to be verified by both the Chinese government and sources outside China. However, it is certain that the new data link will replace HN-900 currently in service on board PLAN ships.

Aircraft

The ship's stern hangar accommodates 1 Kamov Ka-28 (export version of the Kamov Ka-27, NATO codename: Helix) antisubmarine warfare (ASW) helicopter, or alternatively, 1 Z-9 ASW helicopter (Chinese version of the Eurocopter Dauphin AS 365N), and both type can carry various weapons including torpedoes and depth charges. The Ka-28 helicopter can operate in all weather conditions up to 200 km from the host ship, but its onboard dipping sonar only has half the range of the Chinese copy of the French dipping sonar on board Z-9, furthermore, it lacks the processing capability to process the information gathered, so the information has to be passed back to the host ship for processing via data links, while in contrast, Z-9 can process the information gathered on board the helicopter, but with shorter range.

Although the sensors and weaponry carried by both helicopters are somewhat comparable to their western counterparts, the overall capabilities as ASW platforms for these helicopters are seriously hampered due to the installation of their radars: unlike the western belly-mounted radars with 360-degree coverage, the radars for Ka-28 and Z-9 are chin-mounted and nose-mounted respectively, thus creating huge blind spots. In order to overcome these blind spots, Ka-28 and Z-9 must fly in very complicated flight patterns, resulting in significant fuel consumption, thus decreasing the endurance and range in comparison to western ASW helicopters.

Propulsion

The ship's propulsion is in the form of CODOG, consisting of two Ukraine-made DA80/DN80 gas turbines rated at 48,600 hp and two Shaanxi diesel engines (Chinese copy of the MTU 20V956TB92) rated at 8,840 hp (6.5 MW). The DA80/DN80 gas turbine is the export version of UGT-25000 of Ukrainian Zorya-Mashprocket State Enterprise Gas Turbine Research & Production Complex, purchased by China in the late 1990s as part of license-production in China. The UGT25000 has power rating of 25-27 kW depending on configuration. A total of eight units were originally purchased and Chinese sources have claimed that all had been updated, mainly in

the area of turbine blade production techniques, and such update had greatly increased reliability and maintainability.

Specifications

- * Unit cost - Up to 800 million US\$ per ship, including 200 million for CIWS, SAM, & VLS, and 400 million for C4I systems.[citation needed]
- * Ships - DDG 170 Lanzhou and DDG 171 Haikou as of 2006
- * Propulsion - 2 Ukraine DN80 gas-turbines and 2 MTU Friedrichshafen 12V 1163TB83 diesels
- * Length - 153 m
- * Beam - 16.5 m
- * Draft - 6 m
- * Displacement - 7,000 t (full load)
- * Speed - 30 knots (56 km/h)
- * Crew - 250 (40 officers)
- * Combat Data System - H/ZBJ-1 Information processing system designed by the 704th Institute (Reported speed: > 100 Mbit/s)
- * Data link: HN-900 (Chinese equivalent of Link 11A/B). To be replaced by NCTDL
- * Communication: SNTI-240 SATCOM
- * Armament
 - o 8 YJ-62 Anti-ship Missile in 2 x quad cells
 - o 48 vertically launched HHQ-9 SAM
 - o 1 x 100 mm gun
 - o 2 x 30 mm Type 730 CIWS
 - o 4 x Type 726-4, 18 barrel decoy Multiple rocket launcher
 - o 2 x Triple 324 mm ASW torpedo tubes
 - o Aviation: 1 Kamov Ka-28 ASW helicopter



TYPE 052C LUYANG-II

The Type 051C (NATO codename: Luzhou class) is the air-defence missile destroyer built by Dalian Shipyard for the PLA Navy.



The first-of-class, Shenyang (hull No.115), was launched in December 2004 and completed its system installation in late 2005. The sea trial began in early 2006 and the ship was finally commissioned in October 2006. A second hull Shijiazhuang (hull No.116) was launched in 2005 and commissioned in March 2007. Both hulls are deployed by the North Sea Fleet based at Qingdao.

The Type 051C is designed mainly to provide air defence for a fleet against air attack, but it also retains reasonable anti-surface and anti-submarine capabilities. The destroyer appears to be based on the same hull design as the Type 051B (NATO codename: Luhai class) introduced in the late 1990s, with an estimated displacement of 7,100 tonnes. The destroyer is believed to be powered by the steam turbine propulsion, indicating PRC's continuing restraint on the gas turbine technology. The ship has a helicopter flight deck on the stern but does not have a hanger.

Like most PRC-built destroyers introduced after the 1990s, the Type 051C is only built in a small quantity to test the ship design and its weapon systems and sensors. No further construction has been reported since the completion of the first two hulls. Unconfirmed reports suggested that the PRC is developing a more advanced air defence destroyer Type 051D with enhanced capabilities.

S-300F Rif Missile System



The revolver VLS and the 3R41 Volna (Top Dome) fire-control radar on the stern deckhouse (Chinese Internet)

The most noticeable feature of the Type 051C is its Russian-built S-300F (also known as Rif, NATO reporting name: SA-N-6) air defence missile system. Each S-300F missile complex consists of six large-size revolver vertical launching systems (VLS), each housing eight ready-to-launch missiles. Two revolver VLS are installed underneath the bow deck behind the main gun, and four inside the aft deckhouse on the stern ahead of the helicopter flight deck, carrying a total of 48 missiles.

The 5V55RM missile uses the semi-active radar-homing (SARH), capable of engaging airborne targets at a range of 1.2~90km and an altitude between 25m and 30km. The missile is guided by the 3R41 Volna (NATO codename: Top Dome) phased-array target tracking radar (I/J-band, 100km range) installed on top of the stern deckhouse. The radar can direct 12 missiles to engage 6 targets simultaneously. Since two radars are required to give 360° coverage (as, for example, in the Russian Kirov class cruiser), this means that there is a blind gap in full SAM cover in the forward quadrant, resulting in a major tactical restriction.

As shown in its land-based equivalent S-300PMU, the S-300F missile was proven to be highly effective against airborne targets and was found on all Soviet/Russian cruisers built after 1980. The PRC ordered two sets of the S-300F/Rif system from Russia in 2002.

T Anti-Ship Missiles

The ship's surface-to-surface fire-power is less impressive, comprising merely eight indigenous YJ-83 anti-ship missiles. The missile system has eight box launchers (in two groups, each with 4 launchers). The missile uses active radar homing and is powered by a turbojet (with a solid rocket booster). The anti-ship missile has a range of 120km and approaches the target in sea skimming mode at a speed of Mach 0.9. The 165kg shaped charge warhead has time delayed impact proximity fuses.

Guns

For short-range air defence, the Type 051C destroyer is fitted with two indigenous Type 730 seven-barrel close-in weapon system (CIWS) located in the mid-ship position on either side of the rear mast. The Type 730 system has a maximum rate of fire of 4,600~5,800 rounds/min and a maximum range of 3km.

The ship also has a single-barrel 100mm gun, which can be used against surface targets and air targets such as aircraft and low speed missile, with a maximum rate of fire of 90 rounds/min. The gun can be operated in fully automatic mode from the radar control system, from the shipborne optical sighting system, or laid manually. The turret design incorporates strong radar cross-section reduction features.





Anti-Submarine Warfare

The ship is fitted with two triple-324mm torpedo launchers, which is used to launch the Yu-7 (copy of the U.S. Mk46 Mod1) anti-submarine torpedo. The Yu-7 carries a 45kg to engage underwater target at a speed of 43kt, and has a maximum range of 7.3km.

Sensors

The air search radar is a Fregat-MAE-5 (NATO reporting name: Top Plate) 3D air search radar mounted at the top of the rear mast, offering two channels in E-band. The radar can track up to 40 targets simultaneously, and has a maximum range of 120km to aircraft and 50km to sea-skimming missile. There is also a large round radome mounted at the top of the rear mast, possibly housing a MR36 (Type 346?) surface search radar.

A large round radome installed on top of the bridge houses the Mineral-ME (NATO reporting name: Band Stand) radar that provides anti-ship missile control and over-the-horizon radar acquisition and target designation of surface ships. There are two indigenous Type 347G I-band radars integrated with the Type 730 CIWS to provide fire-control.

Countermeasures

The Type 051C has two Type 946 15-barrelled chaff/decoy launchers, and two unknown multiple launchers installed at the mid-ship position. Active ECM system include the interceptor and jammer.

Aviation

The destroyer has helicopter flight deck on the stern, but does not have a helicopter hanger in order to give space to the bulky S-300F missile complex.



TYPE 051B LUHAI-CLASS

Consists of only one ship, No.167 Shenzhen



Shenzhen was laid down by Dalian Shipyard in Northeastern China in May 1996. The Shenzhen made the switch from the Luhai-Class' Diesel-Gas-Turbines to Gas Turbine engines. The Luhai-Class is 2,000 tons larger than the Type 052 destroyer, Luhai-Class.

Analysts speculated that the ship would be equipped with VLS system in the forward section for air-defense SAMs. However, when the ship was finally revealed, many were disappointed by its out-dated air-defense capability. They were still armed with the 8-cell HQ-7 SAM launcher. These SAMs lack effectiveness against sea skimming missiles with multiple approach angles.

The sole Type 051B destroyer 167 Shenzhen participated in the PLA Navy's first goodwill visit to Africa in 2000, the first visit to Europe in 2001 and the first visit to Japan in 2007. In 2004, the ship received its mid-life modernization refit in 2004, with its original 100mm main gun and the HQ-7 air defense missile system being replaced by improved models.



Specifications

- Unit cost - > 2 billion renminbi yuan per ship by 1980s price
- Ships - DDG 167 Shenzhen
- Propulsion - 2 Ukrainian AM50 Gas Turbine Engines
- Length - 153 meter
- Beam - 16.5 meters
- Draft - 6 meters
- Displacement - 6,100 tons (standard); 6,600 tons (full load)
- Speed - 30 knots
- Crew - 250 (40 officers)
- Combat data system - ZKJ-6 Information processing system designed by the 709th Institute (Reported speed: 10 Mbit/s)
- Data link: HN-900 (Chinese equivalent of Link 11A/B, to be upgraded)
- Communication: SNTI-240 SATCOM
- Radar
 - Rice Shield 3-D air search radar
 - Type 360S air/surface search radar
 - Type 344 fire-control radar (for 100 mm gun & SSMS)
- Armament
 - 4 x quad (YJ-83) SSM box launchers
 - 1 x 8-cell HQ-7A SAM with automatic loader (8 ready to fire + 8 spare missiles)
 - 1 x dual 100 mm/56 caliber gun
 - 4 x Type 76A dual 37 mm AA guns
 - 2 x Triple 324 mm ASW torpedo tubes
 - 2 x Type 946 (PJ46), 15-tube decoy rocket launcher
- Helicopter - 2 medium helicopters (Kamov Ka-28 or Harbin Z-9C)

TYPE 052 DESTROYER

The Type 052 Luhu-class was one of the first modern multi-role guided missile destroyers built by China. There are currently two units in active service with the People's Liberation Army Navy (PLAN)



DDG 113 "Qingdao"

Designed by the China Warship Design Institute (formerly the Seventh Academy of the Ministry of National Defense), the ships were built at Jiangnan Shipyard. No.112 Harbin was the first Luhu destroyer followed by No.113 Qingdao.

The class is said to be the first indigenous Chinese warship design approaching modern standards, a significant improvement over the earlier Luda class. The Luhu made extensive use of foreign technologies that were accessible to the PRC prior to the Tiananmen Square incident of 1989. These included French-made radars and fire-control systems and the GE LM2500 gas turbine engines from the U.S., two of which power each ship.

Even with incorporation of Western technology, the chronic lack of adequate ship-borne air defense system have had great impact on the PLAN operations. Equipped with a small number of surface-to-air missiles with visual-range only, and guns with limited range and performance, Chinese warships had historically limited their operations within the area covered by their land-based aircraft due to a lack of fleet defense capability. To rectify this trend, the Luhu destroyers (and the smaller Jiangwei class frigate) were fitted with the HQ-7 SAM that gives it much better air defense capability than any other previous Chinese design, though still limited to within visual range (WVR).

The HQ-7 SAM system is reported to be equipped with 8 ready to fire missiles, plus 16 stored in a semi-automatic reloader system. The same system is also used on the upgraded 051G Luda Destroyer.

In spite of the advances, the 052 Luhu Destroyer still suffers in some areas such as electronic warfare and electronic counter-measures. The Chinese attempted to address these problems with the introduction of an improved Luhu design, the Luhai-class. This follow-on, essentially an enlarged Luhu, features improved electronics from foreign suppliers as well as more advanced weapons.

Specifications (post-refit)

- Unit cost - > 1 billion renminbi yuan per ship by 1980's price
- Propulsion CODOG config
 - 112 Harbin - 2 General Electric LM2500 gas-turbines, 55,000 hp (41 MW) + MTU Friedrichshafen 12V 1163TB83 diesel, 8,840 hp (6.5 MW)
 - 113 Qingdao - 2 x Ukraine GT-25000 gas turbines, 48,600 hp (35.7 MW) + MTU Friedrichshafen 12V 1163TB83 diesel, 8,840 hp (6.5 MW)
- Length - 467.8 feet / 142.6 meter
- Beam - 49.5 feet / 15.3 meters
- Draft - 16.7 feet / 5 meters
- Displacement - 4,200 tons (standard), 4,800 tons (full load)
- Speed - 31 knots
- Endurance - 4,000 nm at 15 kt
- Crew - 260 (40 officers)
- C3I
 - ZKJ-4B (development of Thomson-CSF TAVITAC information processing system, with reported speed of > 1 MPBS)
 - 2 x Type 630 (GDG-775) optronic directors
 - Data link: HN-900 (Chinese equivalent of Link 11A/B, to be upgraded)
 - Communication: SNTI-240 SATCOM
- Radar/Sonar
 - Thomson-CSF TSR 3004 (DRBV-15) Sea Tiger air/surface radar, E/F band (112 Harbin)
 - Type 360S (SR60) air/surface radar, E/F band (113 Qingdao)
 - Type 518 (REL-1/2) Hai Ying long-range 3D air search radar, L-band
 - Type 362 (ESR-1) low-altitude air/surface search radar, I-band
 - Type 345 (MR35) fire-control radar for HQ-7 Surface-to-air missile system, J-band
 - Type 344 (MR34) fire-control for YJ-8x SSM and 100 mm gun, I/J band
 - 2 x Type 347G (EFR-1) Rice Lamp fire-control radar for 37 mm AA guns, I-band
 - 2 x Racal RM-1290 navigation radar, I-band
 - DUBV-23 (SJD-8/9) medium-frequency hull-mounted radar
 - DUBV-43 (ESS-1) towed medium-frequency VDS
- Armament
 - 4 x quad YJ-83 (C-803) ASHM box launchers
 - 1 x 8-cell HQ-7 SAM with 8 ready to fire missiles + 16 spare missiles
 - 1 x Type H/PJ33A dual 100 mm/56 caliber gun
 - 4 x Type H/PJ76A dual 37 mm AA guns
 - 2 x Type 7424 324 mm Yu-7 ASW torpedo tubes
 - 2 x Type 75 (RBU-1200) 240 mm 12-tube ASW rocket launchers
- Electronic Warfare and Countermeasures
 - 1 x Type 984-1 ECM 'X' band jammer (transmitter)
 - 1 x Type 984-4 ECM 'X' band jammer (receiver)
 - 1 x Type 928A ESM
 - 2 x Type 946 15-barrel chaff/decoy launcher
- Helicopter
 - 2 x Kamov Ka-27 'Helix' or Harbin Z-9C (licensed copy of the Eurocopter Dauphin)

TYPE 051 DESTROYER

The Type 051 destroyer (NATO code name Luda class) missile destroyer was the first surface warfare oriented vessel ever designed and built in China, and the first Chinese ship to be fitted with an integrated combat direction system. It was based on the Soviet Neustrashimy class destroyer design, with some design influences from the Kotlin class destroyer design.



In the late 1960s, China began testing its long-range rockets for the Chinese space program, as well as the ICBM program. The People's Liberation Army Navy operated only four ex-Soviet Gnevny class destroyers (Anshan class in PLAN service) at the time, which were unsuitable for long-range ocean recovery missions. The 701 institute was instructed to develop China's first indigenous guided missile destroyer, modelled after the Soviet Kotlin class. The design was approved in 1967, and construction of the first Type 051 Luda class destroyer began in 1968.

A total of 17 Type 051 destroyers were built between 1968 and 1991. 15 remain in service today. Major refit for ships of this class began in 1990s, replacing the old HY-1/HY-2 with YJ-83 (C-803) missile, and manual guns with automatic guns. For air-defense, an 8-cell HQ-7 Surface-to-air missile system is also installed with the upgrade.

Ships

Luda I

This is the original configuration of the design, albeit with equipment inconsistencies among the units. Three shipyards built the 13 vessels of this group: units #106-110 in Luda, #131-134 in Zhonghua, and #160-185 in Guangzhou. Unit No. 160 suffered an explosion in August, 1978 and was eventually scrapped. She is currently listed as decommissioned.

The original Luda destroyer was equipped with 2 x triple HY-1 or HY-2 missile launchers, 2 x 130 mm guns, plus an assortment of manual 25 mm, 37 mm, and 57 mm AA guns. Two of the Luda I destroyers were converted into command-variant, with enlarged superstructure for air defense C3I center, ZKJ-1 combat data system, and Type 381A Rice Shield 3-D long-range air search radar

- * Xi'an (106) - retired Oct. 2007
- * Yinchuan (107)
- * Xining (108)

- * Dalian (110) - Command variant
- * Nanjing (131)
- * Hefei (132) - Command variant
- * Chongqing (133)
- * Zunyi (134)
- * Changsha (161)- retired Aug. 2008
- * Nanning (162)
- * Nanchang (163)
- * Guilin (164)

Luda II

Two Luda class destroyers were modified for ASW and C3I duties. The aft 130 mm gun and AAA guns were removed, and replaced with a helicopter deck, hangar space for 2 helicopters, and an 8-cell HQ-7 SAM system. See this pic for example. A Chinese copy of Thomson-CSF TAVITAC combat data system, ZKJ-4 was added for the C3I duties.

- * Jinan (105) - converted from Luda I to Luda II started in 1987. Retired Nov.2007
- * Kaifeng (109) - upgraded with Crotale SAM and YJ-83 (C-803) missiles (However, it is undecided as to whether unit no. 109 is the Kaifeng or the Dalian.)

Luda III (Type 051G1/G2)

On a whole the new Luda IIIs had the SJD-II and SJD-4 Sonar systems installed. These sonar systems allowed submarine detections up to 18 knots (33 km/h) in harsh sea states. Zhuhai (166) was equipped with 4 x twin YJ-8 (C-801) ASHMs, 1 x triple Whitehead A244 torpedo launcher, Thomson-CSF TAVITAC combat data system (two systems purchased from France in 1985), EFR-1 Rice Lamp fire-control radar, and ESS-1 VDS towed sonar. During the mid-life upgrade, Zhuhai (166) was upgraded with HQ-7 SAM, 4 x YJ-83 (C-803) SSMS, Type 344 fire-control radar, and Type 79A 37 mm AA guns.

The HQ-7 SAM system is reported to be equipped with "semi-automatic reloader" system with 16 spare missiles. The same system is also used on the Type 052 destroyer, bringing the total number of air-defense missiles to 24: 8 (ready to fire) plus 16 (stored).

Zhanjiang (165) was upgraded to the Type 051G1 standard, which is very similar to the Type 051G2.

- * Zhanjiang (165)
- * Zhuhai (166)

Luda IV (Type 051DT)

The PLAN has performed mid-life upgrades on several of its Luda class destroyers. Some ships have been upgraded with a new ZKJ-4A-3 combat data system (C3I), HQ-7 SAM, HY-1/HY-2 missiles replaced by 16 YJ-83 (C-803) anti-ship missiles, and manual AA guns replaced by Type 76A dual-37 mm automatic AA guns. The upgraded ships are sometimes referred to as the Type 051DT. At least 2 ships (109 & 110) are reported to have been upgraded to the Type 051DT standard, with more expected to follow.

Type 051DT (mid-life upgrade) Specs

For comparison, please see this pic of Luda prior to modernization, and this pic of Luda with modernization.

- * Displacement 3,250 tons (empty), 3,670 tons (loaded)
- * Length 433.1 ft (132.0 m) / 132 meters

- * Beam 42 ft (13 m) / 12.8 meters
- * Draft 15.3 ft (4.7 m)
- * Speed ~30+ kts
- * Endurance 2,970 nautical miles (5,500 km) at 18 knots (33 km/h)
- * Crew 280 (45 officers)
- * Propulsion 2 boilers 2 turbines 72,000 hp(m) (53 MW) 2 shafts
- * C3I System: combat data systems of ZKJ series (ZKJ = Zidong Kongzhi Jiqi: automatic control machines)
 - o ZKJ-1 for Luda I
 - o ZKJ-4 for Luda II
 - o Thomson-CSF TAVITAC for Luda III (051G1/G2)
 - o ZKJ-4A-3 for Luda mid-life upgrade (051DT)
 - o Data link: HN-900 (Chinese equivalent of Link 11A/B, to be upgraded)
- * Radar/Sonar
 - o Type 517A Knife Rest, or Cross Slot 3-D long-range air search, A-band
 - o Type 515 Bean Sticks or Pea Sticks air search radar, E/F-band
 - o Rice Screen 3-D early warning long-range radar, G-band
 - o Square Tie air/surface-search radar, I-band
 - o TSR 3004 (DRBV-15 Sea Tiger or Eye-Shield air/surface search radar (E-band)
 - o Type 343G fire-control radar (for 100 mm gun)
 - o Type 347 fire-control radar (for automatic 37 mm guns)
 - o Racal RM-1290 navigation radar (J-band)
 - o High pole IFF
 - o Pegas 2M & Tamir 2 medium-frequency hull-mounted sonar
- * Armament
 - o 16 x YJ-83 (C-803) anti-ship missiles in 4 x quad launcher boxes
 - o 1 x 8-cell HQ-7 Surface-to-air missile launcher + 16 spare missiles
 - o 2 x twin 100 mm guns
 - o 4 x Type 76A dual-37 mm automatic AA guns
 - o 2 x Type 75 (FQF-2500) 12 barrel 240 mm ASW rocket launchers (120 rockets)
 - o 2 x triple 324 mm Yu-7 torpedo launchers
 - o 4 x DC projectors + 4 DC racks
 - o 2 x Chaff/decoy rocket launchers

THE HOUBEI CLASS (TYPE 022)



Performance

The Houbei class (Type 022) missile boat is the newest class of missile boat in the People's Liberation Army Navy. The first boat was launched in April 2004 by the Qiuxin Shipbuilding Factory at Shanghai. These boats incorporate stealth features and wave-piercing catamaran hulls. Approximately 40 or more of these missile boats are currently in service, having gone through serial production. More are anticipated.

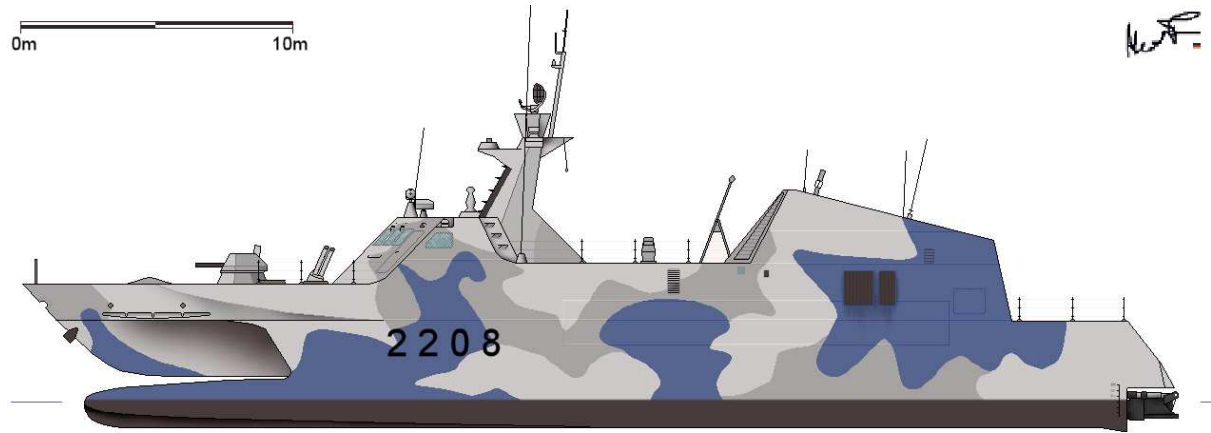
* up to 1,500 kg (3,300 lb) of disposable stores on six hardpoints, including bombs, rockets, and gunpods.

The Houbei class FAC (fast attack craft) are China's entry into a growing list of missile-armed FAC which include Sweden's Visby class corvette and Norway's smaller air cushion Skjold class patrol boat. As the USA continues to develop its Littoral combat ship program other nations have begun developing less complicated and less expensive ships for their own littoral warfare and patrol roles.

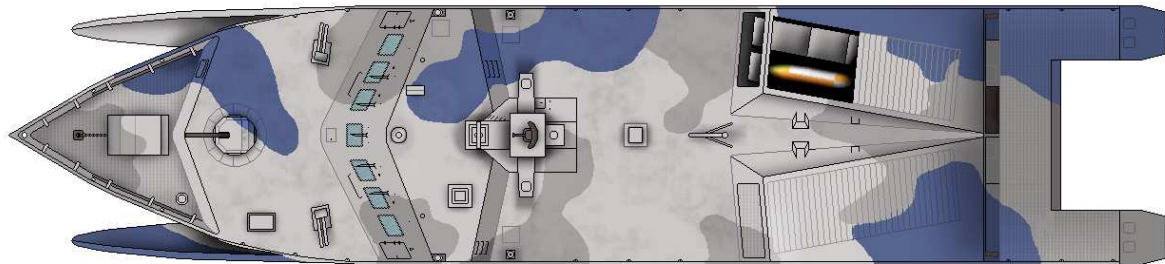
Specifications

- Displacement: 220 tons full load
- Length: 42.6 m
- Beam: 12.2 m
- Draft: 1.5 m
- Speed: 36 kt
- Armament:
 - Anti-ship missiles: 8 C-801/802/803
 - Surface-to-air missiles: 12 MANPAD missiles
 - Guns: 1 x licensed copy of KBP AO-18 6-barrel 30 mm gun (AK-630) by ZEERI
- Propulsion: 2 diesel engines @ 6,865 hp with 4 waterjet propulsors by MARI

- Radars:
Surface search radar: 1 Type 362
Navigational radar: 1
Electro-optics: HEOS 300



Type 022
PLAN FAC



TYPE 053 FRIGATE

Jianghu class (Type 053H) is the NATO code-name for several types of frigates, currently in service with the People's Liberation Army Navy (PLAN). In the PLAN, the Jianghu-class is part of the Type 053-series frigate family. The early variants are small and obsolete, and now primarily used for coastal duty. The latest version is exported as F-22 (Frigate-22). The Type 053 Frigate has been exported to Egypt (2), Bangladesh (2), Thailand (4), and Pakistan has signed agreement to purchase 4 F-22P frigates in May 2006.



The most numerous class of warships serving with the PLAN, Jianghu-class represents a modification of the Jiangdong-class with SSM in place of SAM. The frigates carry high-powered ant-aircraft guns, air and surface search radar and depth charges for anti-submarine warfare. The early variants of this small, obsolete frigate are now primarily useful for coastal patrol, given the absence of gunfire control radars and obsolete missiles.

As many as five variants have been produced, with considerable variation in armament and electronics among units.

Type 53 Jianghu I Xiamen - 1 dual 100 mm gun mounts and 4 37 mm guns

Type 53H Jianghu II Xiamen - 2 dual 100 mm gun mounts and 2 37 mm guns

Type 53HT Jianghu III Huangshi - 8 C-801/YJ-1 SSM replace 2 C-201/HY-2 SSM

Type 53HT-H Jianghu IV Siping - intended primarily for ASW, a helicopter facility replaces half the armament.

Type 53HT Jianghu V Zigong - the least expensive and least powerful variant feature a reduction in missiles and no helicopter facilities.

In early 1999 China deployed a pair of Jianghu-class frigates to the Mischief Reef area in the South China Sea. The two frigates were spotted moving around the Chinese-occupied Mischief, Fiery Cross and Johnson atolls. Although publicly expressing concern, the Phillipine government did not formally protest this deployment, since the presence of such warships is allowed by international law in high seas, even if they are within another country's exclusive economic zone. In November 1998 the Philippines protested China's intrusion into the Mischief Reef, a part of the Spratlys group of islands which is claimed in whole or in part by Malaysia, Vietnam, Taiwan, Brunei, the Philippines and China.

General characteristics

053K (Jiangdong class, retired)

- * Displacement - 1,674 tons empty, 1,924 tons full
- * Length - 103 m
- * Beam - 10.8 m
- * Draft - 3.1 m
- * Propulsion - 2 x 14,000 hp diesels
- * Speed - 26 knots(design) 30knots+(trial)
- * Compliment - 200
- * Armaments:
 - 2 x twin 100 mm gun (22 km range)
 - 2-4 x twin 37mm AAA (8.5 km range)
 - 2 x twin HQ-61B SAM (10 km range)
 - 2 x Type 62, 5-tube ASW RL (1.2 km range)
 - DC rack

053H (Jianghu-I)

- * Displacement - 1,425 tons (empty), 1,702 tons (full load)
- * Length - 103.2 m
- * Beam - 10.8 m
- * Draft - 3.05 m
- * Propulsion - 2 shaft, 2 x 12E390VA diesel engines (8,0000 hp each), 4 x SEMT Pielstick 16PA6V280BTC diesel generators, license-built by Shannxi Diesel Engine Works.
- * Speed - 26 knots
- * Complement - 190
- * RADAR, Sonar, & EW:
 - Type 354 Radar (Eye Shield) 2D air/surface search
 - Type 352 Radar (Square Tie)
 - G/H-band radar for SSM and 100 mm gun targeting
 - EH-5 hull-mounted MF sonar
 - Jug Pair intercept ECM/EW system
 - ZKJ-3 combat data system (with reported speed of 1 Mbit/s) in some units
 - Data link: HN-900 (Chinese equivalent of Link 11A/B, to be upgraded)
 - Communication: SNTI-240 SATCOM
- * Armaments:
 - 6 x SY-1 SSM's in 2 x triple box launchers
 - 2 x 100 mm gun
 - 4 x dual 37 mm AA guns
 - 2 x Type 81 (RBU-1200) 5-tube ASW RL (30 rockets), or 2 x Type 3200 6-tube ASW RL (36 rockets)
 - 2 x Type 62 5-tube A/S mortar launchers
 - 2 x Dept Charge (DC) racks & DC projector

053H2 (Jianghu-III)

- * Displacement - 1,565 tons (empty), 1,960 tons (full load)
- * Length - 103.2 m
- * Beam - 11.3 m
- * Draft - 3.19 m
- * Propulsion - 2 shaft, 2 x 12E390VA diesels @ 1600 hp (17.6 kW)
- * Speed - 26.5 knots
- * Complement - 190-200
- * RADAR

Type 354 Radar (Eye Shield) 2D air/surface search, I-band
 Type 517H-1 (Knife Rest) 2D long-range air search, A-band
 Type 352 Radar (Square Tie) surface search fire-control, I-band
 Type 343 (Wasp Head) fire control radar, G/H-band
 2 x Type 341 fire control radar for dual 37 mm AA gun
 2 x Racal RM-1290 navigation radars, I-band

* Sonar

SJD-5 medium-frequency sonar
 SJC-1B reconnaissance sonar
 SJX-4 communications sonar

* C3I & EW

CTC-1629 combat data system (or Chinese copy ZKJ-3A)
 Data link: HN-900 (Chinese equivalent of Link 11A/B, to be upgraded)
 Communication: SNTI-240 SATCOM
 RWD-8 (Jug Pair) intercept EW suite
 Type 9230I radar warning receiver
 Type 651A IFF
 2 x Mk-36RBOC 6-barrel decoy rocket launchers

* Armaments

8 x YJ-8 (C-801) or YJ-82 (C-802) SSM
 2 x Type 79A dual-100 mm gun
 4 x Type 76 dual-37 mm AA guns
 2 x 5-tube Type 81 ASW rocket launcher (30 rounds)
 4 x Type 64 DC projectors
 2 x DC racks

053H (Jianghu-I)

* 509 Changde (transferred to

Coast Guard #1002)

* 510 Shaoxing (transferred to

Coast Guard #1003)

* 511 Nantong
 * 512 Wuxi
 * 513 Huaiyin
 * 514 Zhenjiang
 * 515 Xiamen
 * 516 Jiujiang
 * 517 Nanping
 * 518 Ji'an
 * 519 Changzhi
 * 520 Kaifeng (scrapped?)
 * 551 Maoming
 * 552 Yibin

053H1 (Jianghu-II)

* 533 Ningbo
 * 534 Jinhua
 * 543 Dandong
 * 545 Linfen
 * 553 Shaoguan
 * 554 Anshun
 * 555 Zhaodong
 * 557 Jishou

053HT-H (Jianghu-IV)

* 544 Siping

053H2 (Jianghu-III)

* 535 Huangshi
 * 536 Wuhu
 * 537 Cangzhou (ex-Zhoushan)

053HT-H (Jianghu-IV)

* 544 Siping

053H2 (Jianghu-III)

* 535 Huangshi
 * 536 Wuhu
 * 537 Cangzhou (ex-Zhoushan)

053H1G (Jianghu-V)

* 558 Zigong
 * 559 Beihai
 * 560 Dongguan
 * 561 Shantou
 * 562 Jiangmen
 * 563 Foshan

TYPE 053H3 FRIGATE

The Jiangwei-class frigate is a continued development of the People's Liberation Army Navy (PLAN)'s 053-series ships. These ships are the first multi-role frigates in PLAN capable of fleet air defense, anti-shipping, and anti-submarine warfare with helicopter capability.



PLAN 053H3 (Jiangwei II) frigate 565 Yulin

General characteristics

053H3 (Jiangwei II)

- * Displacement - 2,250 tons standard, 2,393 tons full load
- * Length - 112 m
- * Beam - 12.4 m
- * Draught - 4.3 m
- * Propulsions - 2 shaft, 2 x 18E390VA diesel @ 14,000 hp (17.6 kW) & 2x MTU diesel @ 8,840 hp (6.5 kW)
- * Speed - 16 knots (30 km/h) cruising, 26 to 27 knots (50 km/h) max
- * Range - 5,000 miles (8,000 km) at 15 to 16 knots (30 km/h)
- * Complement - 168 (with 30 officers)
- * Radar
 - Type 360 Radar (SR60) Surface Search, E/F band
 - Type 517H-1 (Knife Rest) 2D long-range air search, A-band
 - Type 345 Radar (MR35) HQ-7 Surface-to-air missile and 100 mm gun fire-control, J-band
 - Type 352 Radar (Square Tie) surface search and SSM fire control, I-band
 - 2 x Type 347G/EFR-1 (Rice Lamp) dual 37 mm AA gun fire control, I-band
 - 2 x Racal RM-1290 Navigation radar, I-band
- * EW/ECM
 - Data link: HN-900 (Chinese equivalent of Link 11A/B, to be upgraded)
 - Communication: SNTI-240 SATCOM
 - Combat Data System: ZKJ-3C
 - RWD-8 (Jug Pair) intercept
 - Type 981-3 EW Jammer
 - SR-210 Radar warning receiver
 - Type 651A IFF

- 2 x Type 946/PJ-46 15-barrel decoy rocket launchers
- * Aviation
 - Helicopter deck for single Z-9C helicopter
- * Armament
 - 8 x YJ-83 SSM in 2 x 4-cel box launchers
 - 1 x 8-cell HQ-7 Surface-to-air missile system
 - 1 x PJ33A dual 100 mm gun (automatic)
 - 4 x Type 76A dual-37 mm AA guns
 - 2 x 6-tube Type 3200 ASW rocket launchers (36 rockets)
 - 2 x DC racks & launcher



Type 53H3 frigate Sanming at Shanghai Naval Base

Ships

053H2G (Jiangwei I)

- * 539 Anqing
- * 540 Huainan
- * 541 Huaibei
- * 542 Tongling

053H3 (Jiangwei II)

- * 521 Jiaxing
- * 522 Lianyungang
- * 523 Putian
- * 524 Sanming
- * 564 Yichang
- * 565 Yulin
- * 566 Yuxi
- * 567 Xiangfan
- * 527 Luoyang
- * 528 Mianyang

Versions

Type 053H2G (Jiangwei I): Armed with 6 x C-802 anti-ship missiles, and a 6-cell HQ-61B SAM system. Some reports indicate that the HQ-61B have been replaced by the HQ-7 SAM through modernization-upgrade program, and it is claimed that the modernized version is sometimes named Type 055.

Type 053H3 (Jiangwei II): Improved 053H2G with the rear anti-aircraft artillery mount elevated. Armed with 8 x C-802 anti-ship missiles, and HQ-7 SAM. The most obvious visual distinction between Jiangwei I & II is that the aft AAA mounts are elevated in Jiangwei II. Jiangwei II class was briefly equipped with HQ-61B SAM system before being replaced by HQ-7 during upgrade, and some sources claim that the upgraded version is also called Type 057

TYPE 054 FRIGATE

In late 2002 China began construction of a new frigate, the Type 054 (NATO Codename JIANGKAI I). The first ship was No. 525 Ma'anshan.

The Type 054 is successor to the Jiangwei and Jianghu class frigates of the People's Liberation Army Navy. It has been compared to the French La Fayette class frigate. The 4,000 ton (estimated) Type 054 incorporates many stealth



features: sloped hull design; radar absorbent materials; and reduction of surface equipment and features.

The main weapon is two four-cell launchers with the YJ-83 sea-skimming anti-ship cruise missile. It also has an eight-cell launcher with the HQ-7 SAM, which is an improved version of the French Crotale missile. The HQ-7 system has 8 ready to fire missiles, plus 16 stored in the automatic reloader. There is a helicopter flight deck at the stern. It also has a 100 mm main gun and four AK-630 CIWS turrets.

In April 2002, the Franco-German company SEMT Pielstick announced that China had licensed 8 x Type 16 PA6 STC marine diesel engines for 2 new frigates. These 8 engines were built under licensed by Shaanxi Diesel Engine Works, and used to equip the 2 Type 054 Frigates, #525 Ma'anshan, and #526 Wenzhou. Other initial reports claim that the ships were powered by 2 x 16 PA STC + 2 x MTU 20V 956TB92 diesels, or possibly even 4 x 16 PA STC + 2 x MTU 20V 956TB92.

Specifications

- * Length: 134 meters (Reported by CCTV)
- * Beam: 16 meters (Reported by CCTV)
- * Displacement(Full): 4,053 metric tons (Reported by CCTV)
- * Maximum speed: 27 knots (estimated)
- * Range: 8,025 nautical miles (estimated)
- * Propulsion (Combined diesel and diesel):
 - 4 x SEMT Pielstick 16 PA6 STC diesels, 5700 kW (7600+ hp @ 1084 rpm) each
- * Sensors:
 - Type 363S (Thomson-CSF DRBV-15 Sea Tiger) 2D air/surface search radar, E/F band
 - Type 345 (Thomson-CSF Castor-II) fire-control radar for HQ-7 SAM, I/J band
 - Type 347G Rice Lamp fire control radar for AK-630 CIWS guns, I-band
 - MR-36A surface search radar, I-band
 - Type MR34 100 mm gun fire control radar
 - 2 x Racal RM-1290 navigation radars, I-band
 - Type 922-1 radar warning receiver
 - MGK-335 medium frequency active/passive sonar system
 - HZ-100 ECM & ELINT system
 - ZKJ-4B/6 (developed from Thomson-CSF TAVITAC) combat data system
 - HN-900 Data link (Chinese equivalent of Link 11A/B, to be upgraded)
 - SNTI-240 SATCOM
- * Armament:
 - 1 x HQ-7 8-cell SAM launcher
 - 1 x 100 mm dual purpose gun based on Creusot-Loire T100C design
 - 4 x AK-630 6-barrel 30 mm CIWS guns

- 2 x 4-cell YJ-83 anti-ship missile launchers
- 2 x 3-tube 324 mm YU-7 ASW torpedo launchers
- 2 x 6-barrel ASW rocket launchers
- 2 x Type 726-4 18-tube decoy rocket launchers

* Aviation:

- 1 x Kamov Ka-28 Helix or Harbin Z-9C helicopter



Kamov Ka-28 Helix

TYPE 054A FRIGATE



Stealth Frigate Type 054A Jiangkai II

The 054A is based on the same hull as the 054, but has updated sensors and more capable weapons. Importantly, the Type 054A's medium-range HQ-16 VLS SAM system now provides area air defence from all engagement angles up to a range of 50km, a considerable upgrade from the limited engagement angle, short range SAM system of the Type 054. The 4 AK-630 30mm AA guns of the Type 054 have also been replaced by 2 autonomous Type 730 CIWS which have improved reaction time for close-in anti-aircraft and anti-missile

engagements. Like the Type 054, the Type 054A also incorporates many stealth features: sloped hull design; radar absorbent materials; and reduction of surface equipment and features.

Specifications

- * Length: 134 meters (By CCTV report)
- * Beam: 16 meters (By CCTV report)
- * Displacement(Full): 4,053 metric tons (By CCTV report)
- * Maximum speed: 27 knots (estimated)
- * Range: 8,025 nautical miles (estimated)
- * Propulsion (Combined diesel and diesel):
 - 4 x SEMT Pielstick 16 PA6 STC diesels, 5700 kW (7600+ hp @ 1084 rpm) each
- * Sensors:
 - Fregat MAE-5 Top Plate 3D air/surface search radar
 - Mineral-ME Band Stand OTH target acquisition and SSM fire control radar
 - 4 x MR-90 Front Dome SAM fire control radars
 - MR-36A surface search radar, I-band
 - Type MR34 100 mm gun fire control radar
 - 2 x Racal RM-1290 navigation radars, I-band
 - Type 922-1 radar warning receiver
 - MGK-335 medium frequency active/passive sonar system
 - HZ-100 ECM & ELINT system
 - ZKJ-4B/6 (developed from Thomson-CSF TAVITAC) combat data system
 - HN-900 Data link (Chinese equivalent of Link 11A/B, to be upgraded)
 - SNTI-240 SATCOM
- * Armament:
 - 1 x 32-cell VLS for HQ-16 SAM
 - 1 x 76 mm dual purpose gun
 - 2 x Type 730 7-barrel 30 mm CIWS guns
 - 2 x 4-cell YJ-83 anti-ship missile launchers
 - 2 x 3-tube 324 mm YU-7 ASW torpedo launchers
 - 2 x 6-barrel ASW rocket launchers
 - 2 x Type 726-4 18-tube decoy rocket launchers
- * Aviation:
 - 1 x Kamov Ka-28 Helix or Harbin Z-9C helicopter

Active:

Xuzhou
Zhoushan
Huangshan
Chaohu
Yuncheng



Following the service of Type 054A frigate in PLA Navy, a newly improved Type 054A has been launched in Huangpu Shipbuilding company in Guangzhou city, South China. This new vessel was found in September 2008. Firstly it was believed to be another Type 054A frigate, but some improvements were identified lately. So some analysers name it as Type 054B, which has not been proved in PLA system.

TYPE 071 (YUZHAO CLASS)



The Type 071 (Yuzhao class) carries hovercraft and helicopters to allow amphibious assault from greater distance and against more difficult shore terrain. Built by the Shanghai-based Hudong Shipyard, the ship is equipped with a 76 mm gun and 4 x 30 mm CIWS for self-defense. The ship significantly improves the PLA Navy's sea-lift and power projection capabilities.

The lead ship, pennant 998 Kunlun Shan was laid down in Shanghai on June 2006 and launched on 21 Dec 2006 and conducted sea trials in September 2007 and joined the South Sea Fleet in December 2007. The Type 071 LPD increases sea lifting capacity and operational flexibility to the current PLA Navy. Its strong self-contain capability the LPD could operate far from mainland shores, projecting amphibious operations over several thousand nautical miles. The space onboard allows communications equipments to be added for the ship to act as a fleet command and control centre in amphibious operation.

Specifications

- * Displacement: 17,000 - 20,000 tons
- * Length: 200 m
- * Beam: 26.5 m
- * Draft: 7 m
- * Speed: 20 kt
- * Range: 6,000 nm at 18 kts
- * Propulsion: CODAD, 2-shaft, 4 x SEMT Pielstick 16 PC2.6 V400 Diesel engines (35,200 kW), 47, 200hp [3]
- * Armaments:
 - 1 x AK-176, 76 mm gun
 - 4 x AK-630, 30 mm CIWS
 - Possible installation of 2-4 heavy machine-guns (fitted for but not with)
 - 4 x 18-tube Type 726-4 decoy/chaff launcher

* Sensors:

Surface search radar: 1 x Type 360 Radar Seagull S, E/F-band

Air search radar: 1 x Type 364 Radar, Seagull C, G-band, aft

Fire control radar: 1 x Type 344 Radar, I band

Navigational radar: 1

* Complement: 120

* Military lift:

4 x air-cushion vehicles plus 500-800 troops and 15-20 armoured vehicles

2 x LCVP port/starboard davits

* Helicopters: +2 Z-8 Super Frelon



TYPE 072 YUKAN CLASS



The Type 072 (NATO codename: Yukan class) large landing ships were built by Shanghai-based Zhonghua Shipyard (now Hudong-Zhonghua Shipyard) in the 1980s to replace the ageing WWII-era ex-US Navy L-1511 tank landing ships in service with the PLA Navy. The Type 072 is the PLA Navy's first indigenous large landing ship. A total of seven hulls were constructed before the programme was terminated and replaced by the more capable Type 072-II (Yuting class) in the early 1990s.

Specifications

- * Displacement: (standard) 3,110t; (full load) 4,170t.
- * Dimensions:
 - Length: 120m;
 - Beam: 15.3m;
 - Draft: 2.9m.
- * Speed:
 - Max speed 18 knots;
 - economical speed 14 knots.
- * Capacity: 200 troops; or 5 tanks; or 10 vehicles; or 450t cargo beaching.

TYPE 072-II YUTING CLASS



The Type 072-II (NATO codename: Yuting class) is the large landing ship built by Shanghai-based Hudong-Zhonghua Shipyard as a successor to the Type 072 (Yukan class) large landing ship. A total of 11 hulls have been delivered to the PLA Navy since the early 1990s. The Type 072-II is the PLA Navy's first amphibious warfare ship to have a flight deck for helicopter take-off/landing. These ships are currently deployed by the PLA South Sea Fleet based at Zhanjiang, Guangdong Province.

General characteristics

Displacement:	3,430 tons standard, 4800 tons full load
Length:	119.5 m
Beam:	16.4 m
Draught:	2.8 m
Propulsion:	two 12PA6V-280MPC diesels
Speed:	14 knots
Range:	3,000 nm at 14 kt
Capacity:	250 troops or 10 tanks or 500t cargo
Complement:	104
Completed:	11



TYPE 072 III (YUTING II)



Qty: 9 (more building)
Displacement: app. 7,200 t
Crew: 120
Speed: 18 knots
Aircraft: 2 helos
Load:
800 - Tons cargo
Armament:
4 - dual 37mm
2 - 40 tube MLRS



PROJECT 1232.2 (ZUBR)



Qty: 0 (8 building)
Displacement: app. 560 t
Crew: 27
Speed: 50 knots
Load:
130 - Tons cargo
3 - MBT or
10 - IFV or
150 - Troops
Armament:
32 - SR AAW
2 - 30mm AK-630 guns
132 - 140mm rockets

