La Fayette Class

Outlook

- No outstanding orders for ships of this class
- Future sales efforts will be for FREMM class
- Singapore may order additional ships to replace Victory class FAC-M
- Taiwanese program now surrounded by controversy

Orientation

Description. Light frigate for fleet escort of rapid deployment forces and amphibious groups.

Sponsor

DCN International
19 - 21, Rue du Colonél Pierre Avia
BP 532
F-75015 Paris
France
Tel: + 33 1 4736 8080
Fax: + 33 1 4097 5772

Status. In service.

Total Produced. Five have been built for France, six for Taiwan, and three for Saudi Arabia. Six modified versions of this class are in service with Singapore.

Pennant List

Number & Name	Country	Builder	Launch Date	Commission Date
F710 *La Fayette*	France	DCN Lorient	6/1992	3/1996
F711 *Surcouf*	France	DCN Lorient	7/1993	2/1997
F712 *Courbet*	France	DCN Lorient	3/1994	3/1997
F713 *Aconit*	France	DCN Lorient	6/1997	4/1999
F714 *Guepratte*	France	DCN Lorient	7/1999	1/2002
F1202 *Kang Ding*	Taiwan	DCN/China SB Corp	3/1994	5/1996
F1203 *Si Ning*	Taiwan	DCN/China SB Corp	11/1994	9/1996
F1205 *Kun Ming*	Taiwan	DCN/China SB Corp	5/1995	2/1997
F1206 *Di Hua*	Taiwan	DCN/China SB Corp	11/1995	8/1997
F1207 *Wu Chang*	Taiwan	DCN/China SB Corp	11/1995	12/1997
F1208 *Chen Du*	Taiwan	DCN/China SB Corp	8/1996	1/1998
F-710 *Arriyad*	Saudi Arabia	DCN Lorient	6/2000	7/2002
F-712 *Makkah*	Saudi Arabia	DCN Lorient	7/2001	4/2003
F-714 *Al Damman*	Saudi Arabia	DCN Lorient	9/2002	1/2004
68 *Formidable*	Singapore	DCN Lorient	1/2004	5/2007
69 *Intrepid*	Singapore	Singapore Technologies	7/2004	2/2008

La Fayette Class

Number & Name	Country	Builder	Launch Date	Commission Date
70 *Steadfast*	Singapore	Singapore Technologies	1/2005	2/2008
71 *Tenacious*	Singapore	Singapore Technologies	7/2005	2/2008
72 *Stalwart*	Singapore	Singapore Technologies	12/2005	1/2009
73 *Supreme*	Singapore	Singapore Technologies	5/2006	1/2009

Mission. The La Fayette class light frigates are designed to serve as general-purpose escorts for amphibious or rapid deployment force groups operating at overseas stations. The class has a primary anti-surface warfare (ASuW) role. Its anti-air warfare (AAW) capability is limited to self-defense. In the French configuration, these ships have limited anti-submarine warfare (ASW) capability. The Taiwanese version is more focused on the ASW defense, and the Saudi ships are more focused on AAW.

Price Range. The price per ship ranges between $300 million and $350 million for the French versions when first procured.

Contractors

Prime

DCNS	http://www.dcnsgroup.com, 2, rue Sextius Michel, Paris, 75732 France, Tel: + 33 1 40 59 50 00, Fax: + 33 1 40 59 56 48, Email: info@dcn.fr, Prime
Singapore Technologies Marine Ltd	http://www.stengg.com/marine/, 7 Benoi Rd, 629882 Singapore, Tel: + 65 861 2244, Fax: + 65 861 3028, Licensee

Subcontractor

Bainbridge International	8, Flanders Park, Hedge End, Southampton, SO30 2FZ Hampshire, United Kingdom (Flame-Retardant Protection Systems)
EADS France SAS, Division HQ	http://www.eads.com, 37, Boulevard de Montmorency, Paris, 75016 France, Tel: + 33 1 42 24 24 24, Fax: + 33 1 42 24 26 19 (Exocet Missile)
EPCOTS	http://www.epcots.fr/html_en/grp_nvlle-ligne.php, 66 Impasse Branly, Zone Industrielle BP99, Toulon, 83079 France, Tel: + 33 498 080000, Fax: + 33 498 080008 (Sound Isolation)
L-3 Communications - ELAC-Nautik GmbH	http://www.elac-nautik.de, Neufeldtstrasse, Kiel, 24118 Germany, Tel: + 49 431 883 0, Fax: + 49 431 883 496, Email: elac.marketing@]L-3com.com (Echosounders)
MAN B&W Diesel AG	http://www.manbw.com, Stadtbachstrass 1, Augsburg, 86153 Germany, Tel: + 49 821 322 0, Fax: + 49 821 322 3382, Email: info@manbw.de (Diesel Engines)
Thales Air Systems	http://www.thalesgroup.com/Markets/Defence/Home, 7/9 Rue des Mathurins, Bagneux, 92221 France, Tel: + 33 1 40 84 40 00, Fax: + 33 1 40 84 33 81, Email: info.tad@fr.thalesgroup.com (DRBC FFCS Radar; DRBV 15 Radar; D1BV 10 Vampin)

Comprehensive information on Contractors can be found in Forecast International's "International Contractors" series. For a detailed description, go to www.forecastinternational.com (see Products & Samples/Governments & Industries) or call + 1 (203) 426-0800.

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data

	Metric	U.S.
Dimensions		
Length (overall)	124.2 m	407.5 ft
Length (water line)	115 m	377.3 ft
Beam	15.4 m	50.5 ft
Draft	5.5 m	18 ft
Displacement (full load)	3,700 tonnes	

La Fayette Class

	Metric	U.S.
Performance		
Speed (maximum)	46 kmph	25 kt
Range	13,000 km at 28 kmph; 16,700 km at 22 kmph	7,000 nm at 15 kt; 9,000 nm at 12 kt
Endurance	50 days	
Crew	15 officers, 124 enlisted; 12 air crew; 12 Marines	
	Type	**Quantity**
Armament		
Guns	Giat 100mm L55 Mod 68	1
	DCN 20mm	2
Missiles		
SSM	MM-40 Exocet SSM	8
SAM	Crotale	8
Helicopter	AF 565 MA Panther or NH90	1
Electronics		
Radar		
Air/Surface Search	DRBV-15	1
Fire Control	Arabel	1
	Castor II	1
Navigation	Racal Decca 1226	1
Electronic Warfare		
ESM	DR-3000	1
ECM	Salamandre	1
Decoy Launchers	Dagaie	2
IR Detector	DIBV-10 Vampir	1
Command & Control		
Communications	Tavitac 2000	1
Satcom	Syracuse 2	
Propulsion		
Configuration	CODAD	
Diesels	MAN/SEMT Pielstick 16PA6 V280STC	4x 5,250 shp
Auxiliary Propulsion	Electric motors	2
Bow Thruster	–	1
Propellers	Controllable pitch	2

Design Features. The La Fayette class represents the first frigate design in which the external appearance of the ship is determined largely by stealth considerations. In an effort to reduce radar cross-section, the chocks, bollards, hawsers, and capstans are concealed behind two large, prominent bow bulwarks. Guardrails and lifelines are deleted. The ship's boats are housed in recessed midships hangars that can be covered with protective curtains. The superstructure lines are simplified as far as possible, and both the hull and superstructure sides are inclined to reduce radar reflectivity. In addition, the superstructure, masts, and forecastle are coated with radar-absorptive resin.

Significant costs accompany this attention to signature reduction. At sea, the ships run on submarine principles, that is, with the absolute minimum of topside manning, an arrangement made essential by the paucity of guardrails and lifelines. There are unconfirmed reports that these ships are prone to man-overboard emergencies. Another problem is that internal arrangements are not optimum. Internal space is not used efficiently, and some compartments are awkwardly shaped. There is a continuous water-line passageway running from bow to stern on both sides of the ship. This is a major damage control liability.

According to the manufacturer, the La Fayettes have a radar cross-section equivalent to a 500-ton patrol craft. However, in and of itself, stealth is not an end-goal; it is an instrument allowing the ship to carry out its mission more effectively. The design includes aspects where compromises have been made between stealthiness and functionality.

The CODAD (combined diesel and diesel) architecture propulsion system is based on four SEMT Pielstick PA6 diesel engines, each rated at 5,250 shp, with a maximum speed of 25 knots. The range covered is 9,000 nautical miles, at an average speed of 12 knots. The diesels are

mounted in pairs on sound-isolation rafts. The diesels can be connected to two auxiliary electric motors to yield an 11-knot cruising speed.

Operational Characteristics. The La Fayettes have a mixed weapons/sensor suite, befitting their duties as general escorts. However, in the French versions, no ASW capability is provided, and the ships carry neither sonar nor ASW weapons. The main gun is a DCN 100mm weapon with a maximum range of 9 nautical miles against surface targets or 3 nautical miles against air targets. It has a firing rate of 60 rpm. Two 20mm cannons will be used during peacetime patrol duties or against low-flying aircraft.

The vessel has an endurance of 50 days for provisions, ammunition, and spare parts. It is also equipped with a suite of spare parts and equipment sufficient for a six-month mission. Missions include hit-and-run and intelligence tasks, and acting as an operating base for a heavy helicopter that enhances the ship's combat range.

Eight MM40 Exocet missiles are provided for use against long-range surface targets at ranges of up to 38 nautical miles. An eight-cell Crotale NG missile launcher provides the primary surface-to-air defense. Crotale is a surface-to-air missile with a range of 7 nautical miles. The Crotale could be replaced by the ASTER surface-to-air missile, which might be installed once the missile and its associated vertical launch system become available.

An SA 365F Dauphin helicopter is used for reconnaissance and over-the-horizon targeting. The radar suite includes a DRBV 15 (Sea Tiger) surface/air search radar, two Racal Decca 1226 navigation radars, and a Castor II fire control radar. The electronic support measures (ESM) suite is based on the DR-3000 passive intercept system linked to a Salamandre jammer and two Dagaie 10-barreled chaff launchers.

The weapons and sensors are integrated by a Tavitac 2000 command system. Operating in real time, it evaluates and displays the tactical situation, analyzes aircraft and missile threats, and operates air defense systems including weapons and electronic countermeasures. Tavitac 2000 also provides for the navigation and guidance of the ship. Currently, the Tavitac 2000 system installed on the French La Fayette frigates has five terminals, and space has been provided for a sixth. The sixth terminal has been fitted on the Taiwanese versions, reflecting the higher equipment standards of those ships.

The system's data processing architecture is based on a duplicated 10 MB Ethernet data bus. Two MLX tactical computers, based on a chain of Motorola 68030 microprocessors, drive as many as 15 display consoles and network interface units, which provide information exchange between the different systems on the ship. Software is written in Ada, and the MLX computer system was validated by the U.S. Ada Joint Program Office in 1992. Tavitac 2000 is distinguished by its use of ruggedized civilian-standard equipment rather than dedicated military equivalents. This is said to result in substantial cost savings.

Variants/Upgrades

French Versions. The original plan was for France's La Fayette class frigates to be built in two groups of three. The first three would have an octuple Crotale NG launcher installed aft, with a Castor II fire control system providing one guidance channel. The second group was to replace this with a vertical launch silo for 16 ASTER-15 missiles, with an Arabel fire control radar providing up to 16 guidance channels. These plans were changed in 1996, with the last ship being canceled and the ASTER-15 installation restricted to the fifth and final ship.

The RIB (rigid inflatable boat) compartment in the rear of the French versions reportedly can be converted to accommodate a towed variable-depth sonar in less than two months, if required. There has been speculation that the French ASW frigate planned for construction between 2003 and 2008 would emerge as a dedicated ASW version of the La Fayette, with K69 torpedo launchers and an ASW-configured helicopter. This concept was replaced by a significantly larger and more capable ship designated the FREMM class, which is covered by a separate report.

F3000S Sawari II. The versions sold to Saudi Arabia are slightly larger (500-700 tons heavier and 10 meters longer) than the French versions because of the insertion of additional hull sections to accommodate two eight-cell vertical-launch modules for the ASTER-15 missile. Their superstructure is closer to that of the Taiwanese versions. They also have slightly differing electronics systems. The F3000s have Arabel surveillance radars in place of the French ships' Sea Tiger, and each is fitted with a Spherion bow sonar. The Saudi ships also include electronic warfare suites, with DR-300S2s integrated with the Salamandre.

Their main mission is to defend against airborne enemies. No close-in weapon system (CIWS) capability is provided. For secondary duties, 20mm Giat cannon are fitted on the sides of the forecastle. In addition, four torpedo tubes are fitted for F-17P heavyweights.

In 1997, when the option for the third ship was exercised, it was announced that the ships would be fitted with new anti-submarine warfare suites as well, including an active towed array sonar and the torpedo systems mentioned above. Instead of the Crotale NGs as originally planned, Saudi purchasers had all three fitted with 32 ASTER-15 missiles and the Arabel radar, along with the Exocet MM40 Block 2 SSMs.

FF-5000. A further development of the basic La Fayette design is the FF-5000 New Generation Anti-Aircraft Frigate. This is a gas-turbine-powered ship, 135 meters long and armed with 64 ASTER-15 missiles, which supplement the 16 on the original design. A lightweight bow sonar and torpedo tubes would be carried as standard. This design was developed as the French proposal for the Project Horizon joint Anglo-French frigate, but was rejected by Britain as inadequate to meet those requirements. There have been reports that a version of this design is being developed as a joint French-Brazilian program.

Kang Ding Class. The six La Fayettes bought by Taiwan largely follow the above-described concept for a third group. There are many differences to the current French version in both superstructure and armament.

The hulls themselves measure 125 x 15.4 x 4 meters, but in contrast to the French and Saudi versions, those used in Taiwan have a bulbous bow. The anti-submarine capability of the ships has been enhanced significantly from the French versions, presumably to counter the threat from China's submarines, particularly after the acquisition by China of Russian Project 877 and Project 636 (Kilo) class submarines. The ship is designed to carry one Sikorsky S-70C(M)1 ASW helicopter but provides no launch hatch for RIBs, since the towed array is housed in this area.

The Taiwanese ships have six 324mm Mk 32 torpedo tubes that fire Mk 36 Mod 5 torpedoes. The front deck gun is an Oto Melara 76mm L62 instead of the 100mm DCN.

The most significant difference, however, lies in the ships' sonar. The French ships lack sonar systems entirely, whereas the Taiwanese ships carry a TSM-2633 Spherion B bow sonar (hence the bulb), which is particularly suited to the adverse sonar conditions in the Taiwan Strait. The sonar is integrated with a Thales Underwater Systems ATAS (V)2 active towed array.

The Taiwanese ships carry a Phalanx Mk 15 CIWS aft in place of the French 20mm guns in the bridge wings. Two 40mm Bofors guns are at the rear corners of the superstructure, with the Phalanx between them at a higher position. On the rear deck, the French ships have Crotale missiles and their fire control radars (due to be replaced with Syracuse 2 satcoms during their midlife upgrade). Anti-ship missiles on the Taiwanese ships are domestically built Hsiung Feng IIs (two quadruple sets). Surface-to-air missile defense consists of one Sea Chaparral quad launcher with infrared warheads.

La Fayette. Alternate spelling of the French ship class.

Souveraineté. A corvette/light based on the La Fayette frigate being offered to the United Arab Emirates Navy.

Formidable Class (Singapore Frigate). The Republic of Singapore Navy ordered six "stealth frigates" from DCN International. The original documentation on the purchase suggested that the ships would be a simplified version of the basic design, but in July 2000, the order was confirmed as being for warships of the La Fayette class. Benoit Silve, commander of the FS *Aconit*, said on a visit to Singapore that the first of the order will be constructed in France and the other five assembled in Singapore. Subsequently, it was reported that the ships would carry the new Herakles 3-D radar. The acquisition will be completed before 2009. The first-of-class was laid down on November 14, 2002, and the first steel was cut for hulls two and three on October 2, 2002. Prime contractor is Singapore's Design Science and Technology Agency (DSTA), which is also leading combat system integration in partnership with ST Electronics. Photographs of these ships show them to have much enhanced signature reduction design provisions, and they appear to be an intermediate step between the existing La Fayette and the new FREMM designs in this respect.

Eurofrigate. After the collapse of the Anglo-Italian-French Project Horizon Common New Generation Frigate program in 1999, the Italian and French navies continued to collaborate on the construction of a new frigate, reportedly designated the Eurofrigate. It is believed that this effort was intended to result in a significantly simpler ship than the large air warfare combatant proposed by CNGF. One account of this design suggested that it would be based on the Saudi version of the La Fayette, with modifications to include provision of a 76mm main gun. This project was subsequently abandoned in favor of a simplified version of the Project Horizon design. After much evolution, this eventually became the FREMM class.

La Fayette Class

Singaporean Formidable Class Frigate

Source: Singapore Navy

Program Review

Background. In 1980, the French Navy's Direction des Constructions Navales (DCN) began design studies for a new frigate class to replace the Commandante Rivière class. Preliminary design studies took place over the next three years and, by 1984, the design was nearing the final definition stage. The project was formally announced in 1984 and designated FL-25 (Frégates Légères), because the frigate's full load displacement was to be 2,500 tons. The engineering design phase and selection of the sensor and weapons systems were completed in late 1985.

Delays at the Start

The program announcement called for ordering the first ship in 1986 and the second in 1987. In early 1986, this schedule was pushed back two years due to funding shortages brought about by cost growth in nuclear submarine programs. When the program was pushed back, DCN began to consider other weapons and electronics systems for the frigates. The program designation was then changed to FL-3000, because the new systems raised the full load displacement to 3,000 tons. In redesigning the ships, DCN planned two versions of the FL-3000, one optimized for anti-submarine warfare and the other for general-purpose duties.

In late 1986, the French Navy announced that Lorient Naval Dockyard would be the lead builder and then began ordering long-lead items for the new frigates in late 1987. The first three frigates were ordered on April 12, 1988. The first keel was laid in 1989.

The French shipyard Chantiers de L'Atlantique offered the FL-3000 design to the Royal New Zealand Navy in competition with the Australia-New Zealand ANZAC frigate program. The Royal Australian Navy had already eliminated the FL-3000 in favor of the German MEKO 200 and Karel Doorman of the Netherlands. New Zealand had expressed reservations at the cost of the two Australian choices and about the program as a whole. In 1990, the ANZAC frigate program management team selected the MEKO design. The New Zealand Navy would receive a simplified version, costing some 20 percent less than that ordered by Australia.

In June 1989, an agreement in principle was signed between Saudi Arabia and France for the purchase of three frigates of this design for the Saudi Navy.

Contrary to many reports, this understanding had not materialized into a firm order by July 1993. Indeed, the Royal Saudi Navy started looking at alternatives in mid-1992, when it became apparent that the Iranian Navy was on the verge of obtaining Project 877EKM (Kilo class) submarines. This forced the Royal Saudi Naval Forces (RSNF) to place ASW capability at the top of the requirements list, ruling out the FL-25 (the La Fayette, as it was known by this time in its present AAW/ASuW form). A leading candidate for this contract was then reported to be the Canadian Halifax class. The Saudi Arabian Navy then requested permission to proceed with this acquisition but was overruled at high government levels. Two La Fayette class frigates were ordered instead, and the order contained an option for a third ship that was confirmed in May 1997. Delivery of these ships started in mid-2002.

Order from Taiwan

In August 1991, the Taiwanese government ordered six unarmed La Fayette frigates from France for $2.3 billion. These were intended to fulfill a light frigate requirement to supplement and support the operations of the heavier FFG-7 class frigates acquired earlier. The FL-3000 design had been selected a year earlier, but the contract was canceled under pressure from China. After a rebid, the contract was renewed. Ships would be built in France but sailed to Taiwan for fitting-out and arming. This proposal was later dropped, and the ships were built in France. Modifications such as installing the Phalanx CIWS would take place in Taiwan.

In a quiet ceremony to commission the squadron of six frigates, the last of the Taiwanese ships was handed over in January 1998. Subsequently, the acquisition of these ships has become enmeshed in scandal, with allegations of improper conduct by the Taiwanese officials responsible for overseeing the program. There were also allegations that the radar cross-section of these ships was higher than the original specifications allowed. The General Headquarters of the Republic of China Navy denied these reports. In March 2000, the *Straits Times* reported demands in Taiwanese political circles that the La Fayette deal be investigated on grounds that the ships were poorly built and overpriced.

In December 2000, it was reported that France and Taiwan were negotiating a significant upgrade to the Taiwanese La Fayettes in which the ships would return to France to be refitted with ASTER-15 missiles. The cost of this program was estimated at $1.25 billion. In view of the controversy that was engulfing this program, the project appeared unlikely and has not taken place.

The scandal over the Taiwanese purchase of La Fayette class frigates continued to escalate for almost two decades. It finally ended in April 2010 when an international court of arbitration in Paris finally ruled that the French defense contractor Thales had to pay Taiwan more than $591 million as compensation for Taiwan's payment of prohibitive commissions to Thales for its sale of the six La Fayette class frigates. With interest and penalties, this increased to $861 million, making it the highest sum ever awarded in the history of international arms sales compensation.

After some hesitation due to the technicalities of the French government's non-recognition of the government in Taiwan, the French authorities as guarantor of the agreement announced that they would comply with the ruling and make restitution to the Taiwanese government. From the point of view of the La Fayette program, this concluded an ugly chapter in its history. However, it has to be added that the revelations of widespread corruption in the Taiwanese armed forces led many in Taiwan to question whether the much-vaunted "danger" from mainland China was actually so great if leading military figures were prepared to take bribes over arms purchases. This train of thought has been a contributor to a growing acceptance of the idea that some level of reunification will be acceptable.

Budget Crisis in France

In France, the long-simmering military budget crisis struck with full force in early 1996. At the time, available revenues were insufficient to fund all the current French military programs, let alone any of the proposed new starts. The result was that a number of hard choices were made, and a wide range of existing programs were cut back or delayed. The La Fayette building program was no exception. The second group of three French Navy frigates was delayed, and estimated completion dates have been pushed back at least four years. The sixth and final ship of the French program, the FS *Ronarc'h*, was canceled in May 1996. In addition, plans to complete this second group with a greatly improved weapons/sensor fit are reported to have been abandoned. The ships will be virtual duplicates of the first group.

The La Fayette design was one of the favored contenders for the UAE frigate competition, a requirement that could have involved up to eight hulls. This contract was eventually awarded to the Dutch bidders, in the form of swapping two former Dutch Navy Kortenaer class frigates for 24 million barrels of oil (and options on up to six LCF class frigates / destroyers later on). Since then, however, the French have made gestures of offering both the La Fayette and smaller designs such as a version of the Souveraineté

concept to better meet the UAE's perceived defense needs and manning capabilities.

The Singapore Contract

In March 2000, the Republic of Singapore Navy ordered six frigates from DCN International. The ships are described as being modified versions of the La Fayette class, 110 meters long and a crew of 60. The original documentation on the purchase suggested that the ships would be simplified versions of the basic design, but in July 2000, the order was confirmed as being for warships of the La Fayette class. The first of the Republic of Singapore Navy's six frigates, RSS *Formidable*, was launched on January 7, 2004, at Lorient. That was followed by the launch of the second-of-class, RSS *Intrepid*, in July 2004. *Intrepid* is the first of the class to be built in Singapore. The first (French-built) ship of this class was commissioned in 2007. The first three Singaporean-built ships were commissioned in February 2008 with the last pair following in January 2009.

This unexpected success was balanced by the outcome of the Chilean Navy's requirement for up to eight frigates to be built locally as replacements for the Navy's aging fleet of Leanders or Prat class destroyers. This order was the subject of a heated contest between the world's major shipbuilders. At one time, the La Fayette design was considered to be the leading contender, but it was eclipsed at the last minute, possibly because of the political issues surrounding the Pinochet affair. This certainly severely damaged any bids from British and Spanish shipbuilders, and the fallout may have affected the French bid as well. In any event, the Chilean Navy selected the MEKO A200 class for that requirement, although the number of ships was subsequently reduced to four. This program was eventually abandoned completely and the Chilean Navy purchased British Type 23 and Dutch Karel Doorman class frigates in its place.

Birth of FREMM

In July 2000, the French Navy announced that it would be abandoning plans to upgrade the 22 large frigates in service (two Suffren, two Cassard, seven Georges Leygues, three Tourville, and eight d'Estienne d'Orves class) and would instead be replacing them with a total of 17 new warships. (A combination of age and basic design flaws meant that upgrading these ships would cost almost as much as the planned new multimission frigates.) Plans indicated that the first group of eight new ships would be built from 2003, with the first sea trials starting in 2008 and the remaining nine being completed between 2009 and 2015.

By mid-2001, these plans had been somewhat clarified, with the ships specified as 4,500-ton "Fregate Multimission" boats that would be built in two groups. The first eight would be optimized for ASW to replace the Tourville and Georges Leygues class. The second group of nine would be optimized for land attack and replace the A19 class. The design appears to be a blend of the La Fayette class and the Horizon class destroyers. By 2004, the class had become designated the FREMM and evolved into a joint Franco-Italian program. That program is covered in a separate report in this tab titled "FREMM."

Funding

This program is funded by the French Delegation Generale pour l'Armement (DGA).

Contracts/Orders & Options

Contractor	Award ($ millions)	Date/Description
DCN International	N/A	Mar 3, 2000 – Order from Singapore for one frigate of the La Fayette class and technical assistance in the construction of five more by ST Technology.
ST Engineering	N/A	Mar 7, 2000 – Order from Singapore for construction of five frigates of the La Fayette class.
Isotta Fraschini Motori	N/A	Sep 2002 – Supply of 24 800-kW generator sets for the six Singapore Navy Delta class frigates.

N/A = Not Available.

Timetable

Month	Year	Major Development
	1984	DCN announces new FL-25 design
	1984	DCN redesigns ships and adds new systems
	1986	Lorient Naval Dockyard announced as builder
Apr	1988	First three ships ordered by the French Navy
	1989	First keel laid
	1990	Second three ships ordered
	1991	Taiwan orders six ships, with an option for up to 16
	1992	First ship launched
Nov	1994	Sawari 2 contract signed with Saudi Arabia
	1995	Saudi Arabia orders first two ships of Sawari deal
Mar	1996	First ship for France commissioned
May	1996	France cancels sixth ship of series
May	1997	Saudi Arabia exercises third-ship option of Sawari
Jun	1997	France's fourth ship launched
Jan	1998	Sixth ship delivered to Taiwan
Mid-	1998	Shipborne trials of SAMAHE helicopter entrapment, deck-handling system
	2000	Six ships ordered by Singapore
	2000	Saudi Arabia's third ship laid down
Sep	2001	Commissioning of Saudi Arabia's first ship
Jan	2002	France's last (fifth) ship completed
Nov	2002	First metal cut on Singapore La Fayette class
Apr	2003	Saudi Arabia's third ship launched; second commissioned
Jan	2004	Third ship in Saudi Arabia projected ready for service
	2005	First Singapore *La Fayette* delivered
May	2007	First Singaporean Formidable class frigate commissioned
	2008	Last Singapore *La Fayette* delivered

Worldwide Distribution/Inventories

France (5), **Saudi Arabia** (3), **Singapore** (6), **Taiwan** (6)

Forecast Rationale

The La Fayette program is probably one of the most significant and influential warship designs of the late 20th century. Almost every class of warship built since the late 1980s has shown the impact of the design approaches pioneered by the La Fayette class. Designs of this significance are rare; in its way, the La Fayette class has been as revolutionary and influential as the advent of the battleship HMS *Dreadnought* in 1905 or the submarine USS *Nautilus* in 1954.

Despite its impact and undoubted importance in the history of naval design, the La Fayette class program has now reached the end of its life. French naval export activities are now centered on the FREMM class, and the La Fayette design has been essentially retired. As far as exports from France are concerned, it is likely that any future frigate orders placed with French yards will feature a derivative of FREMM rather than the La Fayette.

The rapid increase in the size of frigates since the La Fayette class was designed became the primary reason for the replacement of the design with larger ships. This was primarily driven by a new generation of much more capable sensor outfits. Packaging the new sensors into an enlarged hull more suited to modern requirements produced the FREMM class, which has now received worldwide attention.

The one remaining chance for a La Fayette class order is Singapore. Since Singapore has the rights to the design and experience in building the Formidable class, it would not be surprising if the Singapore Navy decided to continue the replacement of its fast attack craft fleet with additional ships of this type. A second flight of six Formidable class frigates would seem to be a likely procurement to replace the existing Victory class.

However, such a procurement would undoubtedly feature a revised design, reflecting the lessons learned

La Fayette Class

with the first six hulls together with the developments in technology that have been introduced since the first group of ships was ordered. Such improvements on the Formidable class would effectively take the design the rest of the way toward the FREMM class and should be considered part of that program. This leaves the La Fayette class without a production future. The slight chance of a repeat order from Singapore has kept this report active in the absence of other requirements, but unless there is some movement on this in the next year, this report will be archived.

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