



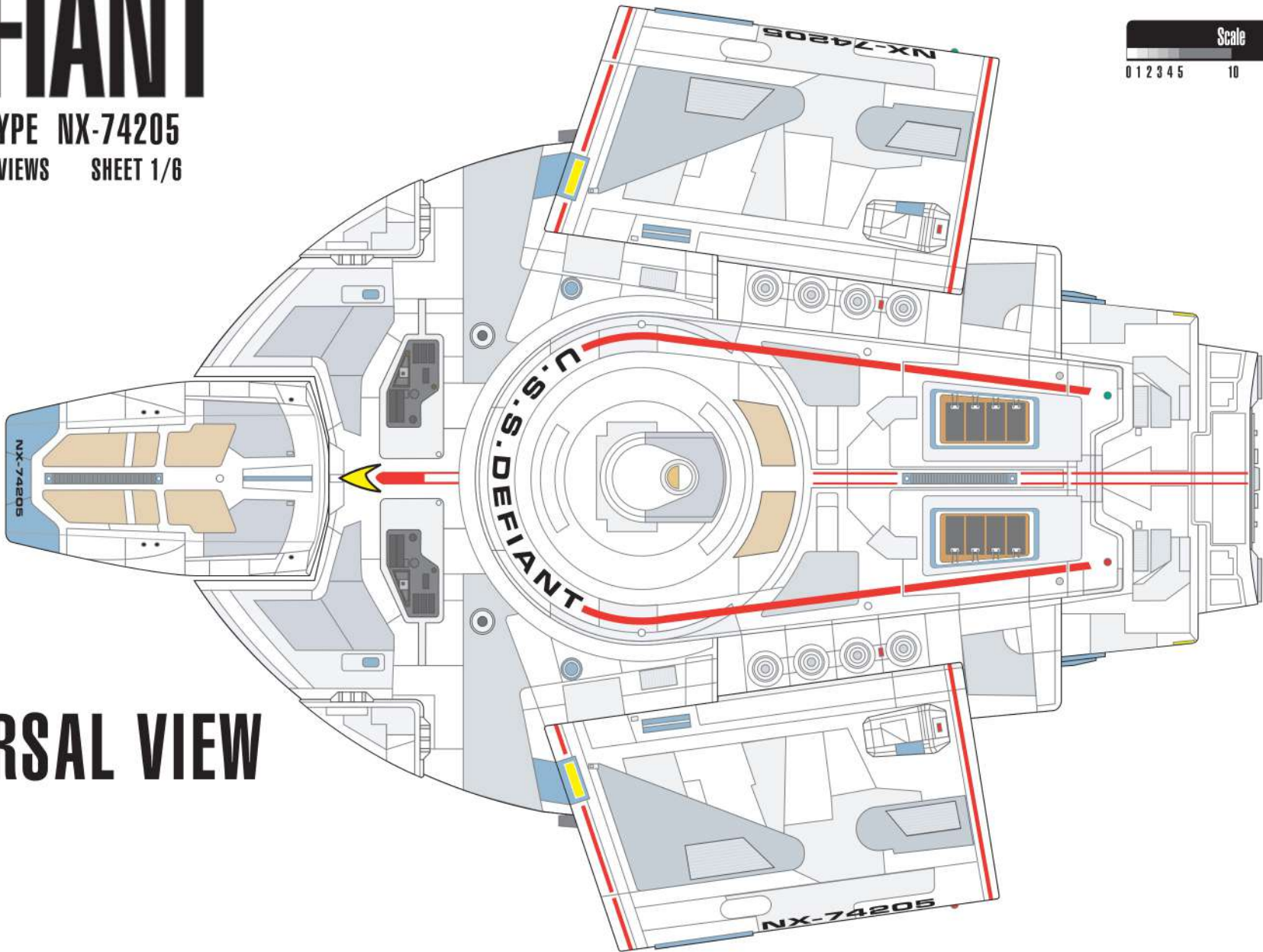
DESIGN TEAM: David Schmidt Senior Designer / Layout Designer / Technical Editor
Tim Palgut Co-Designer / Researcher / Layout Designer / Technical Editor

DEFIANT

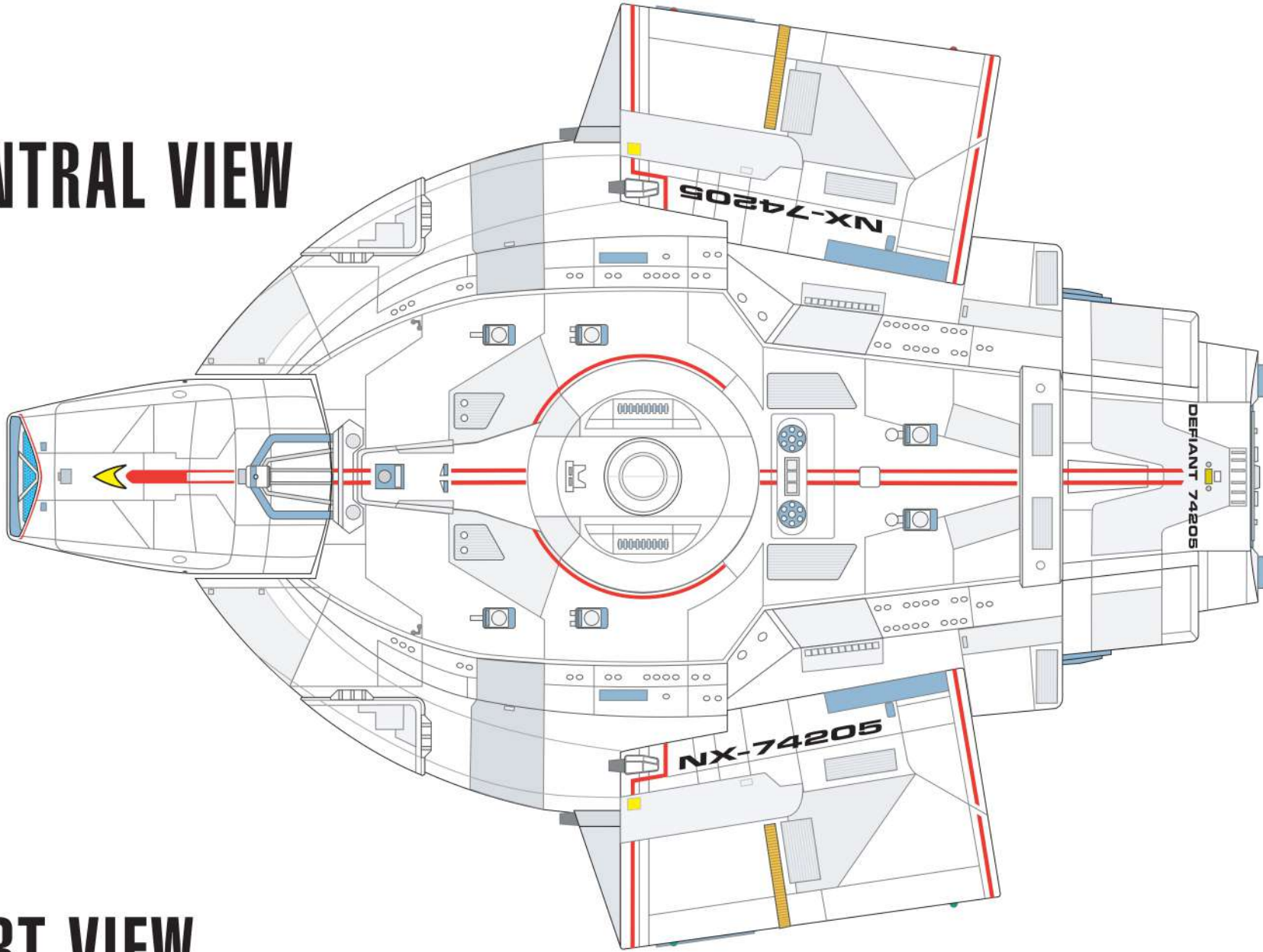
PROTOTYPE NX-74205
EXTERNAL VIEWS SHEET 1/6



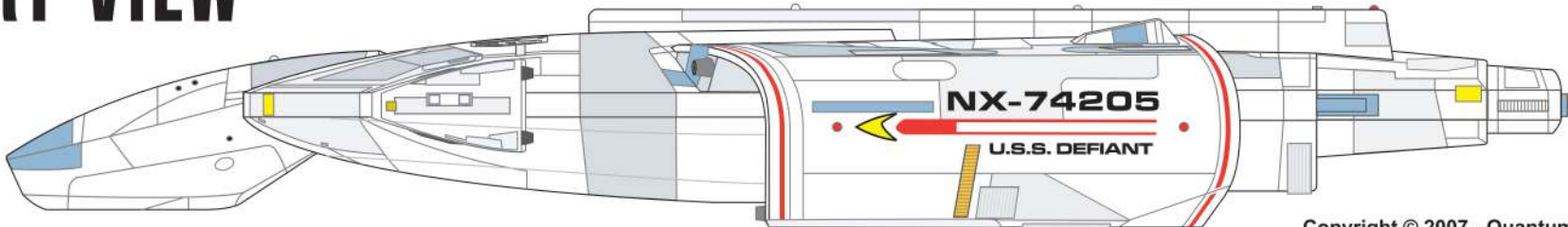
DORSAL VIEW



VENTRAL VIEW



PORT VIEW

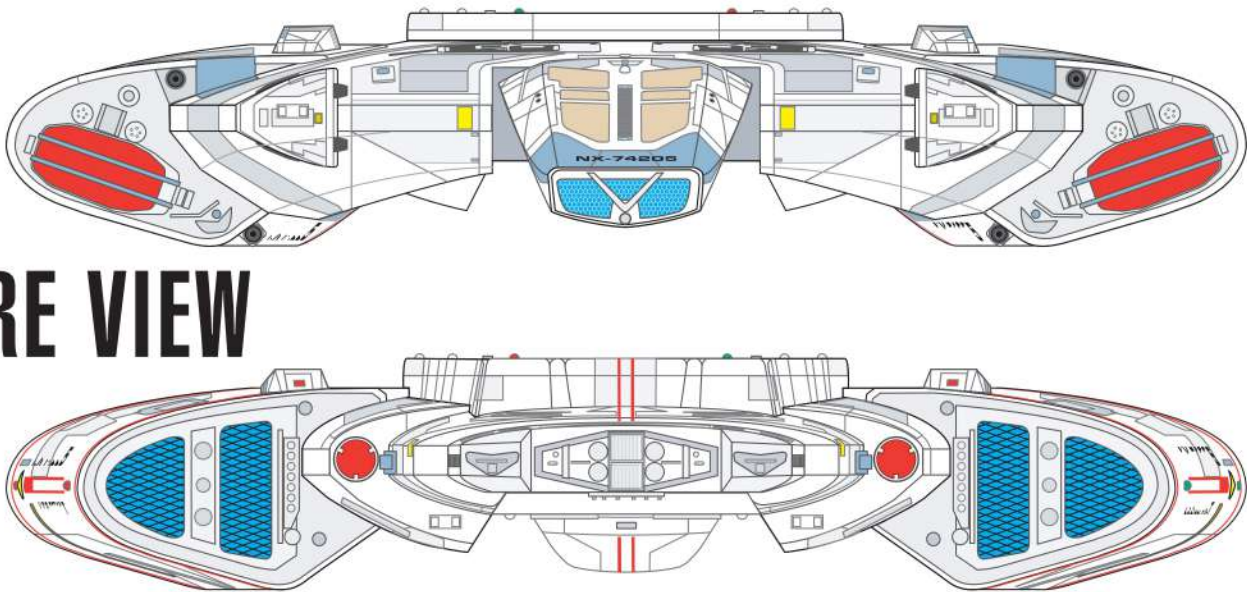


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DEFIANT

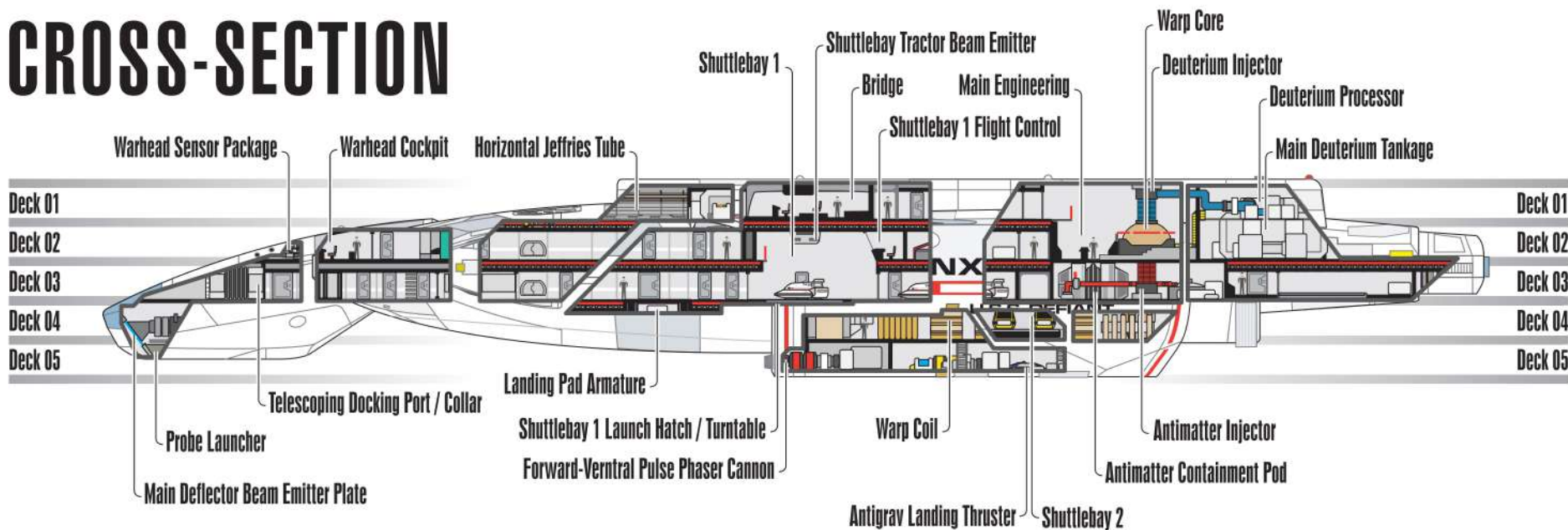
PROTOTYPE NX-74205
EXTERNAL VIEWS SHEET 2/6
CROSS-SECTION
SPECIFICATIONS
SYMBOL CHART
INTERNAL VIEWS

FORE VIEW



AFT VIEW

CROSS-SECTION



SPECIFICATIONS

Particulars

Vessel Class	Defiant
Identification	NX-74205
Type	Destroyer
Spaceframe	
Overall Length	120 meters
Overall Beam	90 meters
Overall Draft	18 meters
Decks	5
Displacement	2.1 X 10 ⁵ tons

Impulse Systems

Power	4 - Primary - deuterium fusion reactor (8.1 X 10 ¹⁰ megawatt)
	4 - Secondary - deuterium fusion reactor (2.2 X 10 ⁹ megawatt)
Vector nozzle	2 (midships-aft)
Cruising speed	0.25 c
Flank speed	0.90 c
Tractor beam	1 Aft (10 megawatt - 290 millicochrane)
	1 Hangar (5 megawatt - 145 millicochrane)

Crew & Auxillary Systems

Complement	14 Officers	36 Enlisted
Transporters	2 3-Personnel	1 Cargo

Information Systems

Computer Core	2 (1 Primary / 1 Secondary)
	Isolinear Optical Chip
	Translator FTL Nanoprocessors

Warp Systems

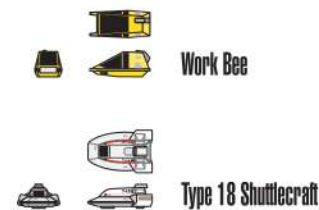
Power	Matter / Antimatter Reactor (4.8 X 10 ⁸ terawatt)
Cruising speed	wf 6.0
Flank speed	wf 9.2
Burst speed	wf 9.982 (Sustainable 1 hour)

Tactical Systems

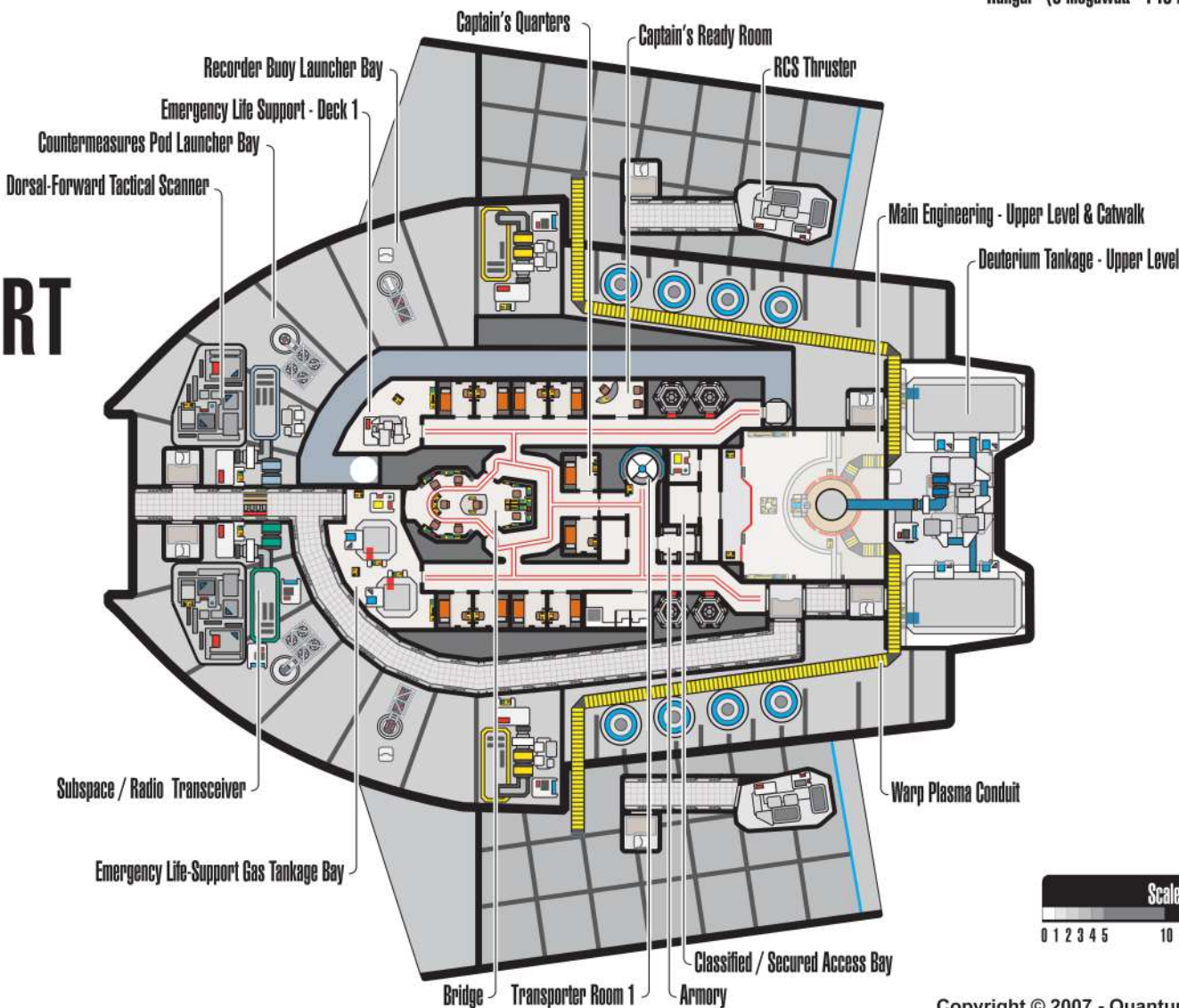
Phaser	4 - Type XII Pulse Phaser
Torpedo Tube Magazine	2 Fore / 2 Aft - Type 3f (burst fire)
	100 Mark VII Quantum Torpedoes
	20 Class 1-9 Probes
Grid	4 Deflector Shield Generator (rated 5.75 X 10 ² mw - standby / 1.35 X 10 ² mw - alert / 2.67 X 10 ⁵ mw - 0.0017 Sec.)
	4 Structural Integrity Field Generator (rated 1.15 X 10 ³ mw)
Deflector	2 - Primary - forward (1.10 X 10 ² megawatt - 115 millicochrane)
	Aft (10 megawatt - 290 millicochrane)
Tractor beam	Hangar (5 megawatt - 145 millicochrane)

SYMBOL CHART

EMBARKED CRAFT



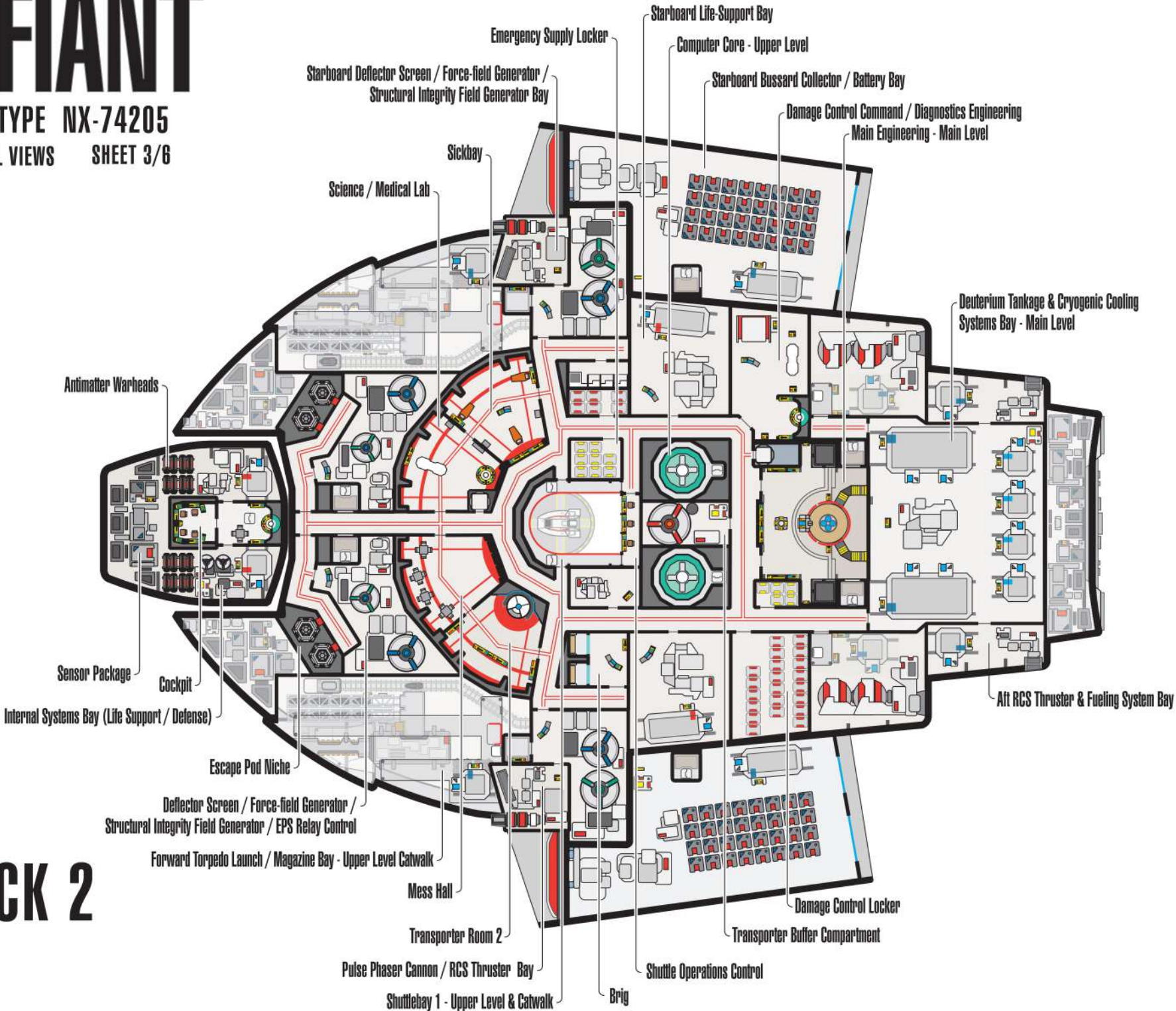
DECK 1



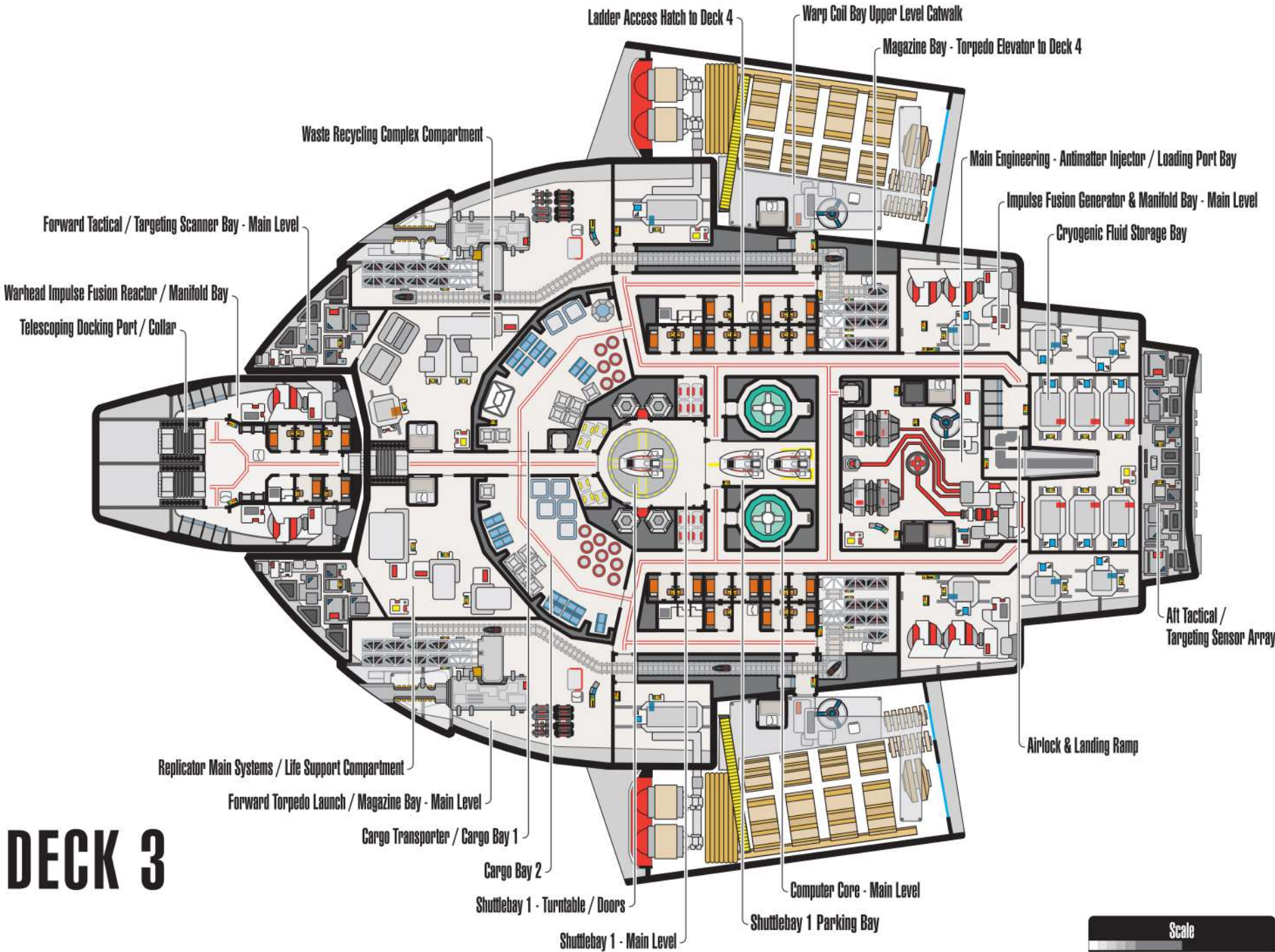
DEFIANT

PROTOTYPE NX-74205
INTERNAL VIEWS SHEET 3/6

DECK 2

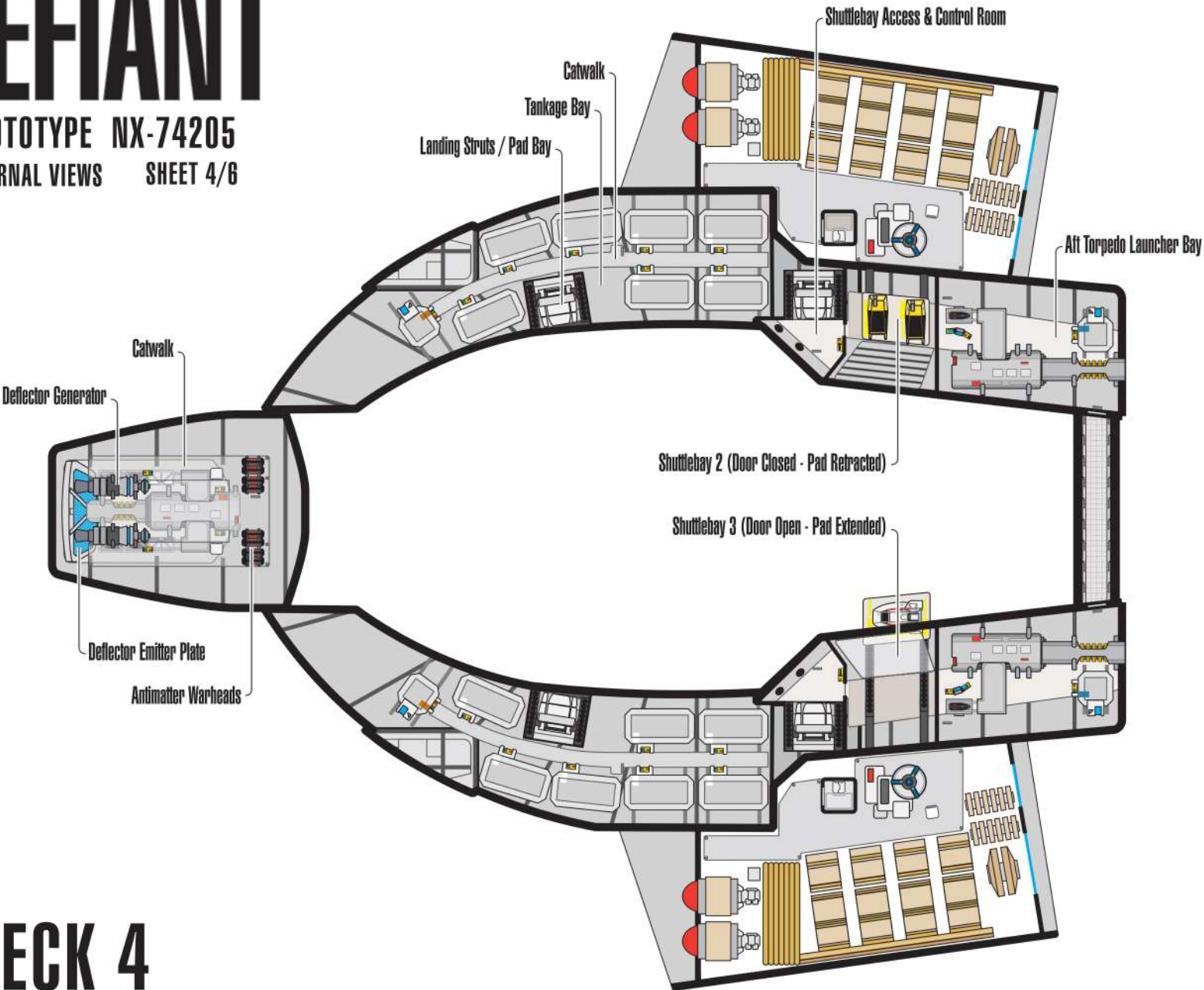


DECK 3

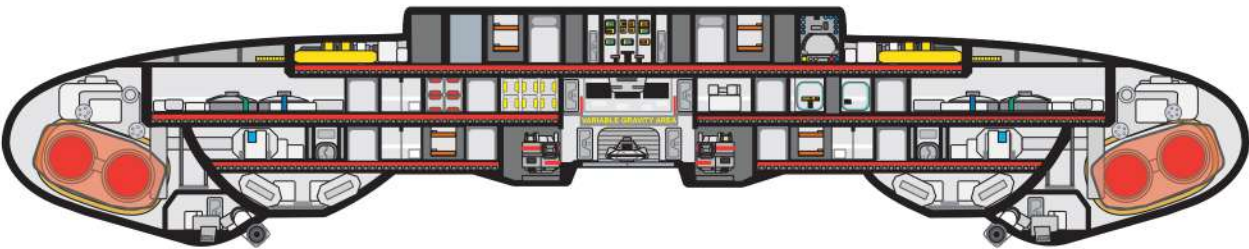


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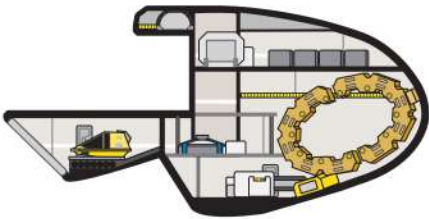
PROTOTYPE NX-74205
INTERNAL VIEWS SHEET 4/6



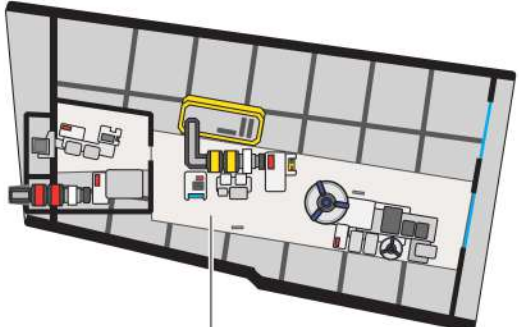
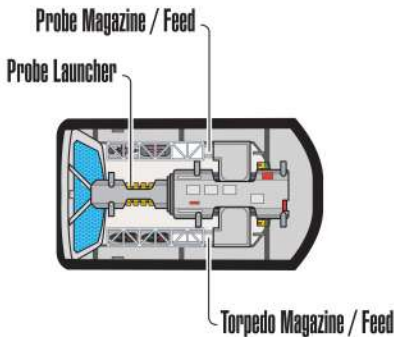
DECK 4



Cross-Section Through Shuttlebay 1
Aft Aspect

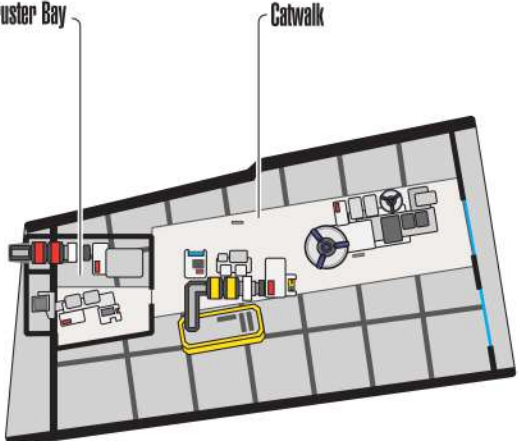


Cross-Section Through Shuttlebay 2
Forward Aspect



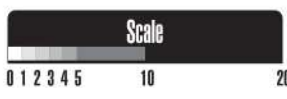
Transporter Transceiver /
Antigrav Landing Thruster Bay

Pulse Phaser Cannon / RCS Thruster Bay



Catwalk

DECK 5



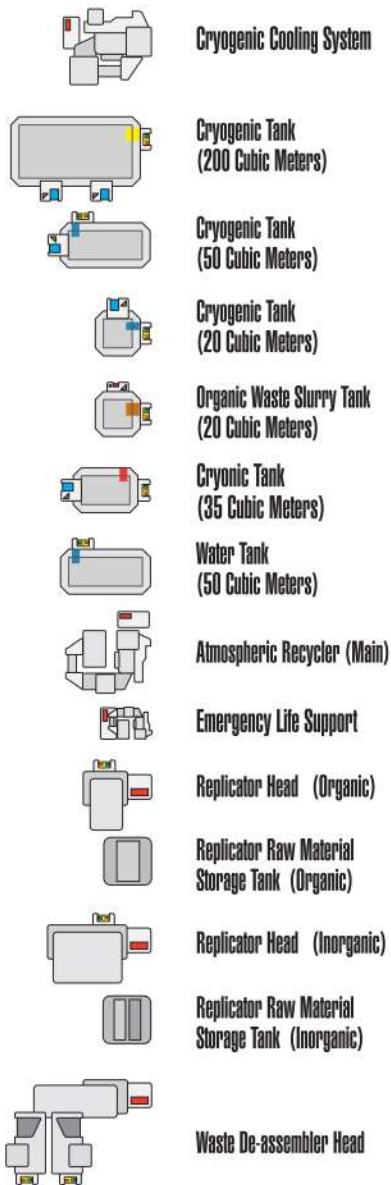
DEFIANT

PROTOTYPE NX-74205

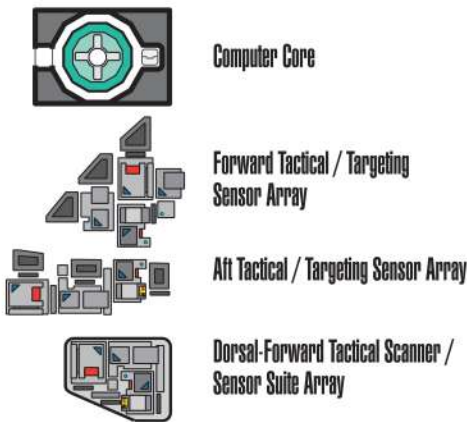
SYMBOL CHART SHEET 5/6

SYMBOL CHART

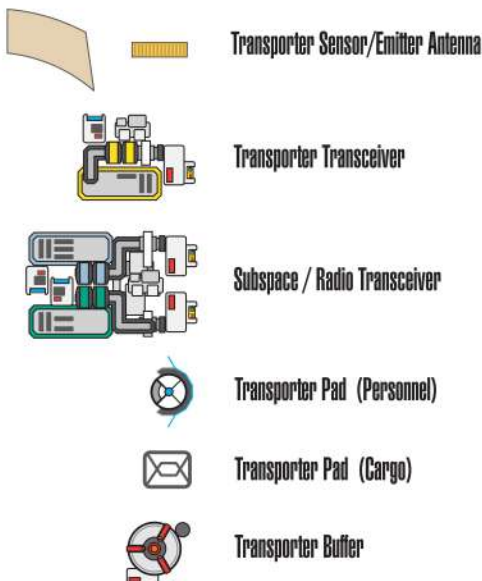
LIFE SUPPORT & FLUID/GAS TANKAGE



AUXILIARY ENGINEERING - INFORMATION SYSTEMS



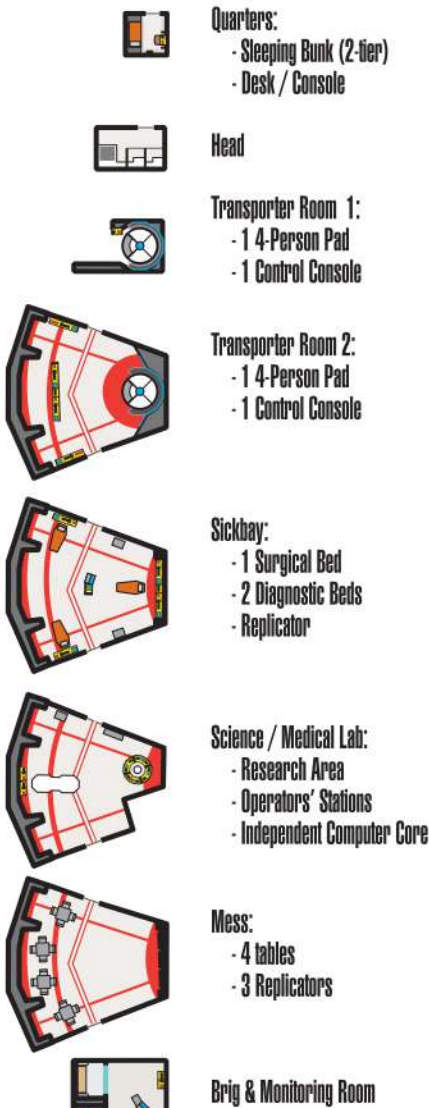
AUXILIARY ENGINEERING - TRANSPORT & COMMUNICATIONS SYSTEMS



AUXILIARY ENGINEERING - MISCELLANEOUS SYSTEMS



AUXILIARY ENGINEERING - COMPARTMENTS



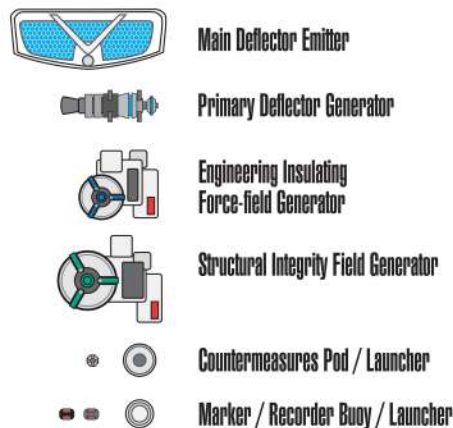
ESCAPE SYSTEMS



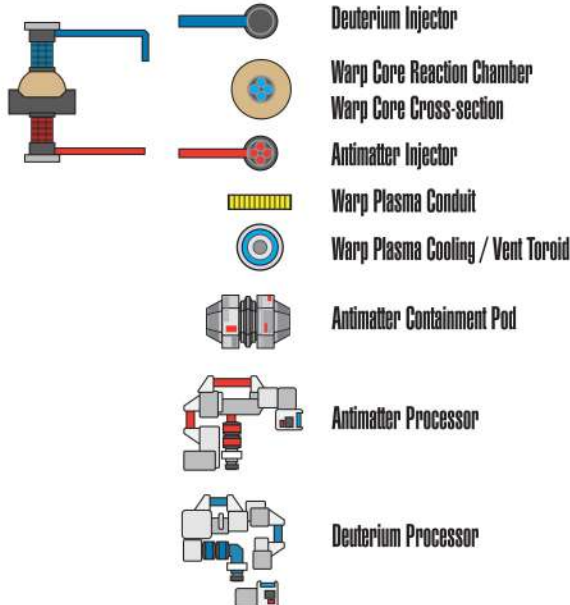
AUXILIARY ENGINEERING - EXTERNAL FEATURES & MARKINGS



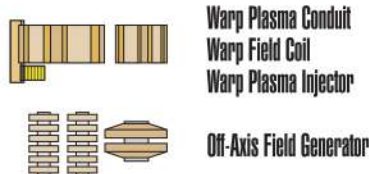
AUXILIARY ENGINEERING - GRAVITONIC SYSTEMS



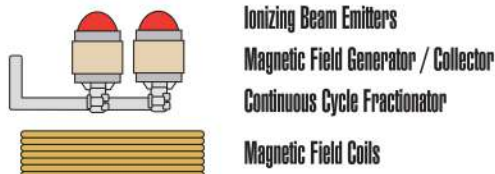
MAIN ENGINEERING - WARP CORE SYSTEMS



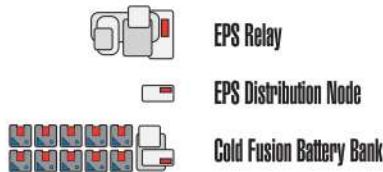
MAIN ENGINEERING - WARP DRIVE SYSTEMS



MAIN ENGINEERING - BUSSARD COLLECTION SYSTEMS



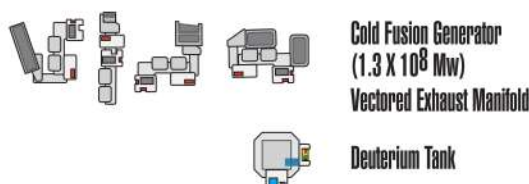
MAIN ENGINEERING - ELECTRO-PLASMA SYSTEMS



MAIN ENGINEERING - IMPULSE DRIVE SYSTEMS



MAIN ENGINEERING - REACTION CONTROL THRUSTER SYSTEMS



AUXILIARY ENGINEERING - CONSOLES & STATIONS



DEFIANT

PROTOTYPE NX-74205

DECK DIRECTORY SHEET 6/6

DESIGN HISTORY

DECK DIRECTORY

Deck 01	
1	Main Bridge
1	Captain's Ready Room
1	Armory
1	3-Personnel Transporter Room
1	2 Subspace / Radio Transceiver Bay
2	Transporter Transceiver Bay
1	Emergency Life Support Bay
1	Emergency Life Support Gas Tankage Bay
2	Dorsal-Forward Tactical Scanner / Sensor Suite
1	Captain's Quarters
9	Officer's Quarters (1, 2-tier Bunk)
2	Warp Plasma Conduit & Vent Bay
1	Main Engineering - Upper Level / Deuterium Injector
1	Deuterium Tankage & Cryogenic Cooling Systems Bay - Upper Level
4	Escape Pod Access
1	Classified / Secure Access Bay
Deck 01 Warp Cowling	
2	Dorsal-Midships RCS Thruster Bay

Deck 02	
2	Forward Tactical / Targeting Scanner / RCS Thruster Bay- High-Bay
2	Forward Torpedo Launch / Magazine Bay - Upper Level
2	Forward Deflector Screen / Force-field Generator / Structural Integrity Field Generator / Plasma Relay Control Compartment

1	Sickbay
1	Science / Medical Lab
1	Mess Compartment
1	Brig
2	Life Support Bay
2	Emergency Supply Locker
2	Dorsal-Forward Pulse Phaser Cannon Compartment / RCS Thruster Bay
2	Midships Deflector Screen / Force-field Generator / Structural Integrity Field Generator Compartment
1	Shuttlebay 1 - Upper Level
1	Shuttlebay Control Room
1	Transporter Buffer Compartment
2	Computer Core Compartment - Upper Section
1	Damage Control Command / Diagnostics Engineering Workshop
2	Damage Control Locker
1	Main Engineering - Warp Core Intermix & Warp Plasma Distribution - Main Level
1	Deuterium Tankage & Cryogenic Cooling Systems Bay - Main Level
4	Escape Pod Access
2	Aft RCS Thruster Bay
2	Impulse Fusion Generator & Manifold Bay - High-Bay

Deck 02 Warhead	
1	Antimatter Warhead / Sensor Package Bay
1	Cockpit / Emergency Bridge
2	Life Support / Defense Packages
Deck 02 Warp Cowling	
2	Battery Bay
2	Dorsal-Midships RCS Thruster Fueling Tankage

Deck 03	
2	Forward Tactical / Targeting Scanner / RCS Thruster Bay - Main Level
2	Forward Torpedo Launch / Magazine Bay - Main Level
1	Waste Recycling Complex Compartment
1	Replicator Main Systems / Life Support Compartment
1	Cargo Bay 1 & Cargo Transporter
1	Cargo Bay 2
18	Enlisted Quarters (1, 2-tier Bunk)
1	Shuttlebay 1 - Main Level
1	Shuttlebay 1 Parking Bay

2	Computer Core Compartment - Main Section
1	Main Engineering - Antimatter Injector Bay
2	Impulse Fusion Generator & Manifold Bay
4	Escape Pod Access
1	Airlock / Ventral Landing Ramp
2	Magazine Bay - Torpedo Elevator to Aft Launchers
2	Cryogenic Fluid Storage Bay
2	Aft RCS Thruster Fueling System
1	Aft Tactical / Targeting Scanner Bay
2	Impulse Fusion Generator & Manifold Bay

Deck 03 Warhead	
2	Telescoping Docking Port / Collar
5	Quarters (1, 2-tier Bunks)
2	Warhead Impulse Fusion Reactor & Manifold Bay
Deck 03 Warp Cowling	
2	Bussard Ionizing Beam Emitter / Bussard Magnetic Field Generator / Collector Bay - Upper Level
2	Warp Coil Bay - Upper Level

Deck 04	
2	Water & Waste Tankage Bay
4	Landing Struts & Pad Bay
1	Shuttlebay 2 - Control Room
1	Shuttlebay 2 - Extendable Platform
1	Shuttlebay 2 - Platform & Tractor Beam Bay
1	Shuttlebay 3 - Control Room
1	Shuttlebay 3 - Extendable Platform
1	Shuttlebay 3 - Platform & Tractor Beam Bay
2	Aft Torpedo Launch Bay

Deck 04 Warhead	
1	Probe Launcher & Probe Magazine - Upper Level
Deck 04 Warp Cowling	
2	Bussard Ionizing Beam Emitter / Bussard Magnetic Field Generator / Collector Bay - Main Level
2	Warp Coil Bay - Upper Level

Deck 05 Warhead	
1	Probe Launcher & Probe Magazine - Main Level
Deck 05 Warp Cowling	
2	Ventral-Forward Phaser Cannon / RCS Thruster Compartment
2	Transporter Transceiver / Antigrav Landing Thruster Compartment

DESIGN HISTORY

Project Defiant was first proposed by Starfleet Command to the Federation Council in 2367 as an escort / pocket destroyer vessel. It was the first pure warship designed for Starfleet in over a century- possessing minimal science and crew-comfort facilities. The proposed specifications and capabilities never intended the warship for extended deep space patrols or missions - rather it would be deployed from forward bases or act as an escort for large fleet operations.

The first spaceframe components of the class' lead ship were gamma-welded at the Utopia Planitia Fleet Yards in 2365. On 09 November 2368, U.S.S. Defiant (NX-74205) was launched. She immediately began shakedown trials in the home sectors, being formally commissioned on 30 July 2369.

Section 1.0 Spacecraft Structure

The spaceframe of the Defiant-class starship is tritanium/duranium macrofilament truss frames, averaging 0.65 m² in cross section. These are placed at the tops of Decks 1, 3, and 5 for all three axis of the ship. Smaller trusses are spaced between quarters, at corridor junctions, and at the turbolift shafts, measuring 0.25 m² in cross section. This physical framework is reinforced by the Structural Integrity Field (SIF), using a network of Class 2 ceramic-polymer wave guides to distribute energy to Class 1 ceramic-polymer elements. The exterior hull substrate is poly bonded to 4 cm by 0.5 cm bands with 2 cm studs every meter that are gamma welded to the main frame.

Section 1.1 Spacecraft Hull Structure

The inner hull layer is 5 cm thick and is composed of a poly microfoam with interwoven tritanium filaments (nominally 1.5 meters in width by 2.5 meters in length). The second layer is four sheets of 0.4 cm thick tritanium, each laid 90 degrees to the layer above it for torsion strength, bonded to a sheet of Aledium foil for radiation protection. The third layer is a honeycombed duranium alloy with a micro-ceramic polymer bonded to each side for thermal insulation and SIF conductivity. The fourth / outer layer is composed of a 2.0 cm ablative ceramic fabric with interwoven tritanium filaments. This is attached to a polycobhrams sheet by a catalytic bonding process. This fabric is 3.0 meters wide by 3.0 meters in length and is attached with standard duranium fasteners to the first three layers after they are bonded together. This layer is replaced as needed, with no more than 8 years between oldest and newest sheets. Original with this design (conceived and implemented subsequent to launch) is a layer of ablative armor covering over 87% of the outer hull. This feature has proven so effective that it has been added to subsequent vessels of the class during construction. The destroyer U.S.S. Defiant was the first Starfleet vessel to pioneer ablative armor matrix technology - by purchasing said armor from a non-Starfleet supplier and adding the matrix as a retrofit - post-launch - at her home station. Essentially a form-fitting 15 cm. thick plating of cerametal laminate composites (each segment is comprised of hundreds of nanite-laid layers), the armor's purpose is to dissipate any attacking energy which penetrates the defensive screens. Any surface which gains too much thermal energy begins to flash-boil away in layers, with the vaporized matrix carrying the excess energy away from the vessel's tritanium hull plates.

Section 1.2 Structural Integrity Field

The physical integrity of the spaceframe is augmented by the SIF. The SIF is created by four field generators on Decks 2 and 4 (within the warp cowlings), each consisting of a pair of 2 megawatt graviton polarity sources. These feed a pair of 150 millicochrane subspace field distortion amplifiers. Due to the unique warp coil assembly alignment, all four SIF generators must be online during warp travel. The SIF system creates a subspace distortion field that is guided along all trusses and hull plates, reinforcing these by a factor of 150,000% of their usual tensile strength. In addition to the waveguides within the internal spaceframe, there is a series of SIF emitters on the hull.

Section 1.3 Inertial Damping Field & Synthetic Gravity Generators

The Inertial Damping Field (IDF) operates in parallel with the ship's artificial gravity generators, maintaining a series of variable-symmetry force fields to absorb external inertial forces. The force fields are maintained according to SFRA-standard 352.12, averaging 75 millicochranes with field differential of 5.26 nanocochranes/meter. Flux generation for IDF and gravity are provided by generators within the crawl space under each deck, in a hexagonal grid with nodes spaced 30 meters apart

Section 1.4 Security & Containment Force Field Generators

Main Engineering has twin secondary force-field generators responsible for maintaining containment for the Warp Core - with standby units for emergency containment in the event of coolant leakage and other hazards endemic to Antimatter and Fusion reactions. They are also tasked to perform other

modalities, and using waveguides and sophisticated forming software can be routed to perform various tasks - including corridor security barriers and bulkhead life-support barriers (in the event of localized hull breaches), these units have a set of four 1 megawatt polarity sources feeding a pair of 75 millicochrane field generators.

Section 2.0 Computer Systems

The Main Computer Cores (MCC) are located on Decks 2 and 3 in the Primary hull. The MCCs consist of 138 dedicated modules of 144 isolinear optical storage chips, which, under LCARS control provide dynamic access at a rate of 4,800 kiloquads/sec. The total storage capacity for each module is 64,000 to 128,000 kiloquads, depending on software configuration and data compression rates. The MCC is joined to the Optical Data Network (ODN) by triple redundant Micron Junction Links (MJL) on each module. The final layer to the computer systems is a dedicated short range Radio Frequency (RF) system that all cores use to communicate with the control panels, access points, and PADDs.

Section 3.0 Non-parallel Warp Coil Assemblies

The warp drive engines are a departure from engineering doctrines Starfleet has garnered since the flight of the Phoenix. The most radical change is the orientation of the coil assemblies: the port and starboard assemblies are not parallel to the ship's X axis, but rather each angles in at the rear 8 degrees. This feature has been noted in alien craft, but the debits have always seemed to outstrip the potential gains. On the credit side, the non-parallel alignment offers superior warp dynamics: increased acceleration, speed and maneuverability in terms of cochranes/megawatt of power expended. The downside is the nemesis of Starfleet vessel design: operational safety. The sheer-forces created by the warp coil assemblies during radical maneuvering or acceleration are almost twice those of a conventional parallel design - since the coil assemblies and their mountings will be subjected to increased torque as the coils attempt to pull ahead and away from each other. To negate the sheer-force threat, designers eliminated the usual weak link - nacelle support pylon structural members - by eliminating the nacelles completely. Rather, the warp assemblies are attached to the vessel's frame members directly, and encased within cowlings. Both assemblies are rigidly locked to the vessel within an integrated keel/frame design.

Section 4.0 Ordnance

Primary firepower consists of four pulse phaser cannon - mounted at the forward end of the warp cowlings, dorsal and ventral. Starfleet nominated to forgo the standard Type X phaser strip in favor of the Type XII cannon due to size vs power demand considerations, as well as system survivability/redundancy issues (any damage to a segment of a phaser strip renders the entire strip offline). The cannon do not draw power from the ship's EPS grid. Rather, they are fed directly from the warp plasma conduits within the cowling via a bypass/bleed assembly - a return in concept to the Constitution-class upgrade of 2273. Secondary firepower consists of four standard torpedo launchers firing quantum torpedoes - two forward and two aft. The forward pair are mounted behind caps of enhanced ablative armor (torpedo cowlings), which serve to protect the launchers from incoming fire along the X axis. The cowlings are detachable, allowing quick access to the launch bay interior for repair/replacement/upgrade of the launchers.

Section 5.0 Warhead

The Warhead is a special-purpose mission-specific module - designed to be easily swapped-out at need. It is mounted at the extreme forward end of the vessel. In its standard configuration (WH1), the module is a small non-warp spacecraft with an overpowered impulse drive. At the extreme forward end is the vessel's deflector emitter plate, fed by tandem deflector generators. Between the deflector generators is a small probe launcher. The WH1 possesses standard sensor/scanner, computer, life-support, defensive force-field/structural integrity generator, and recycling/replicator packages identical to those built into Danube-class runabouts. It also contains a runabout-style cockpit/bridge, and five sleeping cabins (each holding two bunks). As such, the WH1 fulfills three purposes; 1) As an oversized lifeboat, in the event of catastrophic damage to the main starship, the WH1 can support thirty persons for 8 months. 2) In a response to the Borg threat as an offensive capacity, the WH1 can be remotely programmed from the main bridge to separate and intercept a threat target. To this end, the WH1 contains 36 photon torpedoes on board. 3)The WH1 can be used as a Cutter carrying a contingent of marines as a raiding party. From the time of the Constitution-class Heavy Cruiser, most starships have had a TurboLift-External Access Connection Shunt (TEACS). The TEACS is a hatch on the exterior of the ship's hull, which when opened allows direct access to the ship's turboshaft network. When a starship is docked to a major Federation orbital facility (Spacedock, Drydock, etc.), an umbilical connection from the facility enables turbolift cars from the facility to enter the starship's network - and also enables the reverse. Normally, the shunt hatch is located on the dorsal surface of the Bridge module. However, the Defiant-class Destroyer has no such shunt. It was decided in the early planning stages that these vessels would possess data and materials of strategic importance, and so extreme security measures would be utilized. One of these is the 'Single-Access Protocol'. When a Defiant-class Destroyer is docked (using the bow-mounted extendable docking collar), the collar hatch becomes the only means of physical entry or exit to and from the vessel. This point is always guarded by a security contingent.