DDG 1000 Zumwalt Class

Joe McPherson
Advanced Gun System Program Manager
PEO (IWS)
Zumwalt Description

❖ Mission
  − Littoral Battlespace Dominance
  − Multi-mission capable
  − Network-centric operations

❖ Description
  − Precision strike
  − Naval surface fire support
  − In-stride mine avoidance
  − Optimized crewing
  − Life cycle affordability
  − Robust survivability

❖ Employment
  − Provide forward presence and power projection, independently, and in connection with Joint Forces

Key Performance Parameters

- Interoperability
- Number of Guns
- Gun Magazine Capacity
- Vertical Launch Cells
- Radar Cross Section
- Manning
- Force Protection
- Survivability
Hull
Wave-Piercing Tumblehome

Characteristics
- Length: 600 ft
- Beam: 80.7 ft
- Draft: 27.6 ft
- Speed: 30 kt
- Displacement: 14,987 LT
- Installed Power: 78 MW
- Crew Size: 148 (incl. Aviation detachment)

Integrated Power System (IPS)
- (2) Main Turbine Generators (MTG)
- (2) Auxiliary Turbine Generators (ATG)
- (2) 34.6 MW Advanced Induction Motors
- Integrated Fight Through Power

Aviation
- MH60R and (3) VTUAVs
  (Capacity for 2 MH 60Rs)

Sensors
- Dual Band Radar (DBR)
  - S-Band
  - Volume Search Radar (VSR)
- X-Band
  - Multi-Function Radar (MFR)

HF & MF Bow Sonar Arrays
Multi-Function Towed Array
EO/IR System
ES System

Weapons
- (80) Advanced Vertical Launch (AVLS) cells for Tomahawk, ESSM, Standard Missile
- (2) Advanced Gun System (AGS) 155 mm guns
  - (600) 155 mm rounds
- (2) 57 mm Close In Guns (CIGS)
- Torpedo Defense (Space Reservation)
- Anti-Terrorism (Space Reservation)

Superstructure
- Composite Structure

Boats
- (2) 7m RHIBs
  (sized for (2) 11m RHIBs)

Hull
Installed Power: 78 MW
Crew Size: 148 (incl. Aviation detachment)
<table>
<thead>
<tr>
<th>Zumwalt</th>
<th>DDG 79</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement</td>
<td>14,987 LT</td>
</tr>
<tr>
<td>Length / Beam</td>
<td>600 ft / 80.7 ft</td>
</tr>
<tr>
<td>Draft</td>
<td>28 ft</td>
</tr>
<tr>
<td>Crew Size</td>
<td>148</td>
</tr>
<tr>
<td>Flight Deck</td>
<td>150 ft x 51 ft</td>
</tr>
<tr>
<td>Freeboard</td>
<td>22 ft</td>
</tr>
<tr>
<td>Electric Power Available</td>
<td>78 MW</td>
</tr>
<tr>
<td>Ship's Service Power</td>
<td>Net-Ready / Unmanned Radio Room</td>
</tr>
<tr>
<td>Connectivity</td>
<td>14 Radio Personnel</td>
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</tbody>
</table>
**Zumwalt Advantage**

*Anti Air Warfare -- Aircraft and ASCMs in Littoral*

Radar Cross Section of a Fishing Boat

**Harder to Detect, Localize, Classify, and Target; Improved Detection and Engagement Ranges of Threats**
Zumwalt Advantage
DBR vs SPY-1D in Clutter

Enhanced Performance Against Advanced Threats and Targets in Clutter
Zumwalt Advantage
Integrated Undersea Warfare

- Quieter Acoustic and reduced Magnetic Signature

- Enables significant increase in safe operating Area against mine threats

- With 50% decrease in manning for In Stride Mine Avoidance plus ASW

DDG 51 = 10 watchstanders
DDG 1000 = 5 watchstanders
**Zumwalt Advantage**

**Land Attack**

<table>
<thead>
<tr>
<th>DDG 1000/AGS</th>
<th>74 Nmiles</th>
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<tr>
<td>5”/54</td>
<td>12 Nmiles</td>
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**AGS / LRLAP**

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<tr>
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<th>DDG 1000*</th>
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<tbody>
<tr>
<td>Munition Weight (AUR)</td>
<td>320 lbs</td>
</tr>
<tr>
<td>Magazine Capacity</td>
<td>600 LRLAP</td>
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<tr>
<td>Ordnance Stored</td>
<td>192,000 lbs</td>
</tr>
<tr>
<td>Manning (excl Fire Control)</td>
<td>Unmanned</td>
</tr>
<tr>
<td>Warhead Weight</td>
<td>60 lbs</td>
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<tr>
<td>Sustained ROF</td>
<td>20 rpm</td>
</tr>
<tr>
<td>Volume of Fire (W/H*ROF)</td>
<td>1200 lbs/minute</td>
</tr>
<tr>
<td>Range (spec)</td>
<td>74 nmiles</td>
</tr>
<tr>
<td>Ashore Coverage @ 25 nmile standoff</td>
<td>5,000 nmiles^2</td>
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## DDG 1000 Program Schedule

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<tr>
<th>Hull</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
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**Ship Design**

- Transition Design
- Detail Design
- Total Systems Production Readiness Review

**DDG 1000**

- Award Level of Effort
- Award Advance Procurement
- Award Contract
- Start Fabrication
- Lay Keel
- Launch
- Ship Custody Transfer

**DDG 1001**

- Award Level of Effort
- Award Advance Procurement
- Award Contract
- Start Fabrication
- Lay Keel
- Launch
- Ship Custody Transfer

**DDG 1002**

- Award Advance Procurement
- Award Contract
- Start Fabrication
- Lay keel
- Launch

**DDG 1003**

- Award Advance Procurement
- Award Contract
- Start Fabrication
- Lay Keel
- Launch

**DDG 1004**

- Award Advance Procurement
- Award Contract
- Start Fabrication

**DDG 1005**

- Award Advance Procurement
- Award Contract

**DDG 1006**

- Award Advance Procurement
- Award Contract
BAE Systems Mission System Equipment

Cordova, AL

AGS Components

First Production Barrel on Hollow Spindle Lathe

Carriage Weld Sub Assembly