



GPS III Space Segment



Founded on Success—Designed for the Future

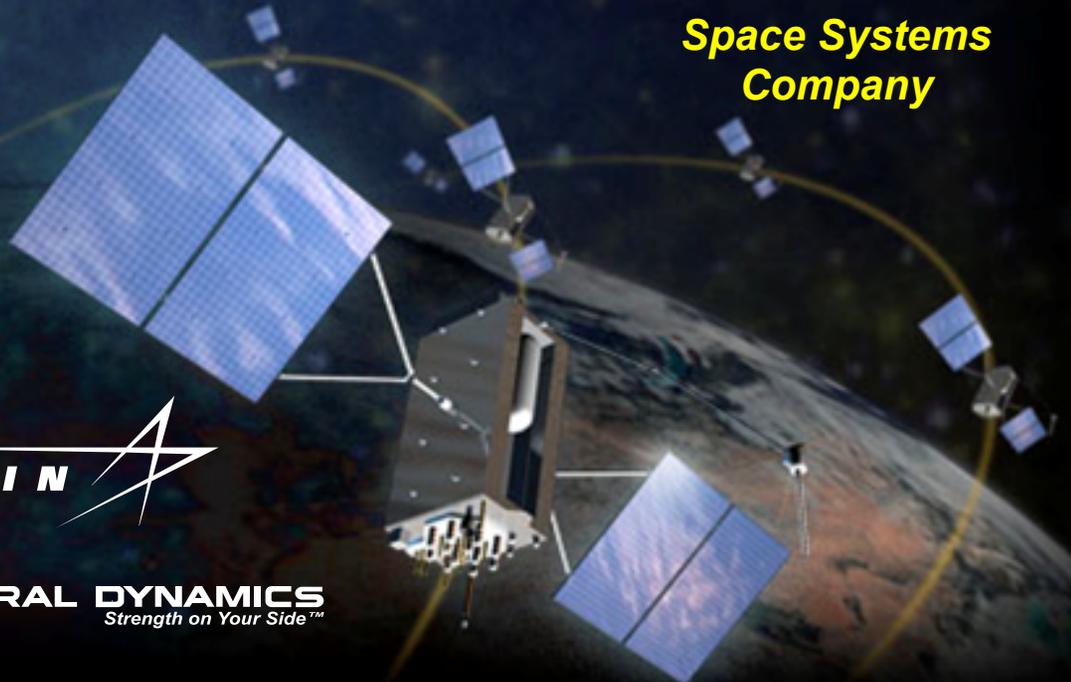
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LOCKHEED MARTIN



GENERAL DYNAMICS
Strength on Your Side™





- Deliver critical new high-value GPS space capabilities
 - Improved PNT accuracy and power for both warfighter and civilian users
 - Additional civil signal (L1C)
 - Enhanced M-code Earth Coverage power
 - Graceful growth path for future capability insertion (**GPS IIIA → IIIB → IIIC**)
- High-Confidence Acquisition
 - "Back to Basics" program execution
 - Mission Success emphasis
 - Time certain development for on-time launch availability
- Reverse previous space program acquisition pitfalls
 - Unnecessary technical, cost and schedule risks
 - Cost overruns and schedule delays
 - Program restructures or terminations



Artist conception of GPS IIIA vehicle

Low risk solution to satisfying on-going GPS modernization



GPS III Team



- Lockheed Martin
 - Spacecraft Development
 - Critical Space Vehicle Components
 - Space Vehicle Assembly, Integration and Test
 - Space Vehicle Launch Processing
 - Program Management
- ITT
 - Navigation Payload Design, Development and Production
- General Dynamics
 - Network Communications Element
 - UHF Crosslinks

Experienced Team Executing In Partnership with USAF GPS Wing



- Thirty-eight A2100s on-orbit today
 - 1st A2100 in operation for over 13 years
 - No SV failures after over 250 spacecraft-years accumulated to date
 - Received Frost & Sullivan’s Satellite Reliability Award: “Most reliable and efficient of its class”
 - Exceptional earth pointing reliability

- Modular design accommodates large range of payloads and launch vehicles
 - Features parts reduction/simplified construction
 - Increased on-orbit reliability
 - Reduced weight and cost
 - Proven production cycle time
 - Key customers:

SES World Skies	Echostar	Telesat
SES ASTRA	SPJSAT	BSAT
US Air Force	US Navy	NASA Goddard



A2100AX vehicle at Newtown facility

GPS III built on highly reliable satellite bus platform



GPS IIR/IIR-M Heritage



- Twenty GPS IIR/IIR-M space vehicles on orbit today
 - 1st GPS IIR in operation for over 12 years
 - 1st GPS IIR-M in operation for over 4 years
 - 19 spacecraft currently operational with well over 100 spacecraft-years to date
 - Improved overall GPS constellation accuracy
 - Exceptional payload reliability (>99.9%)
- Modernization of GPS IIR accelerates acquisition of additional capabilities
 - GPS IIR-M provides ionospheric correction capability for civil users with L2C capability
 - 1st L2C NAV broadcast began in Sep 2009
 - Allows manufacturers to start early receiver development
 - Provides second set of military codes for both L1 and L2
 - Provides anti-jamming through flexible power capability
 - Flexible design allowed demonstration of third civilian signal (L5)



Artist conception of GPS IIR vehicle

GPS III built on heritage of critically successful IIR/IIR-M programs



GPS IIIA (8 planned)

- Increased accuracy (0.63 m spec)
- Increased Earth Coverage Power (-151.5 dBW)
- Additional civil signal (L1C)
 - Interoperable with Galileo and Japan's QZSS
- Bus capacity for IIIB and IIIC

GPS IIIB (8 planned)

- Real-time command and control cross-links
 - Allows upload of all GPS IIIB/IIICs via single contact
 - Improves constellation accuracy



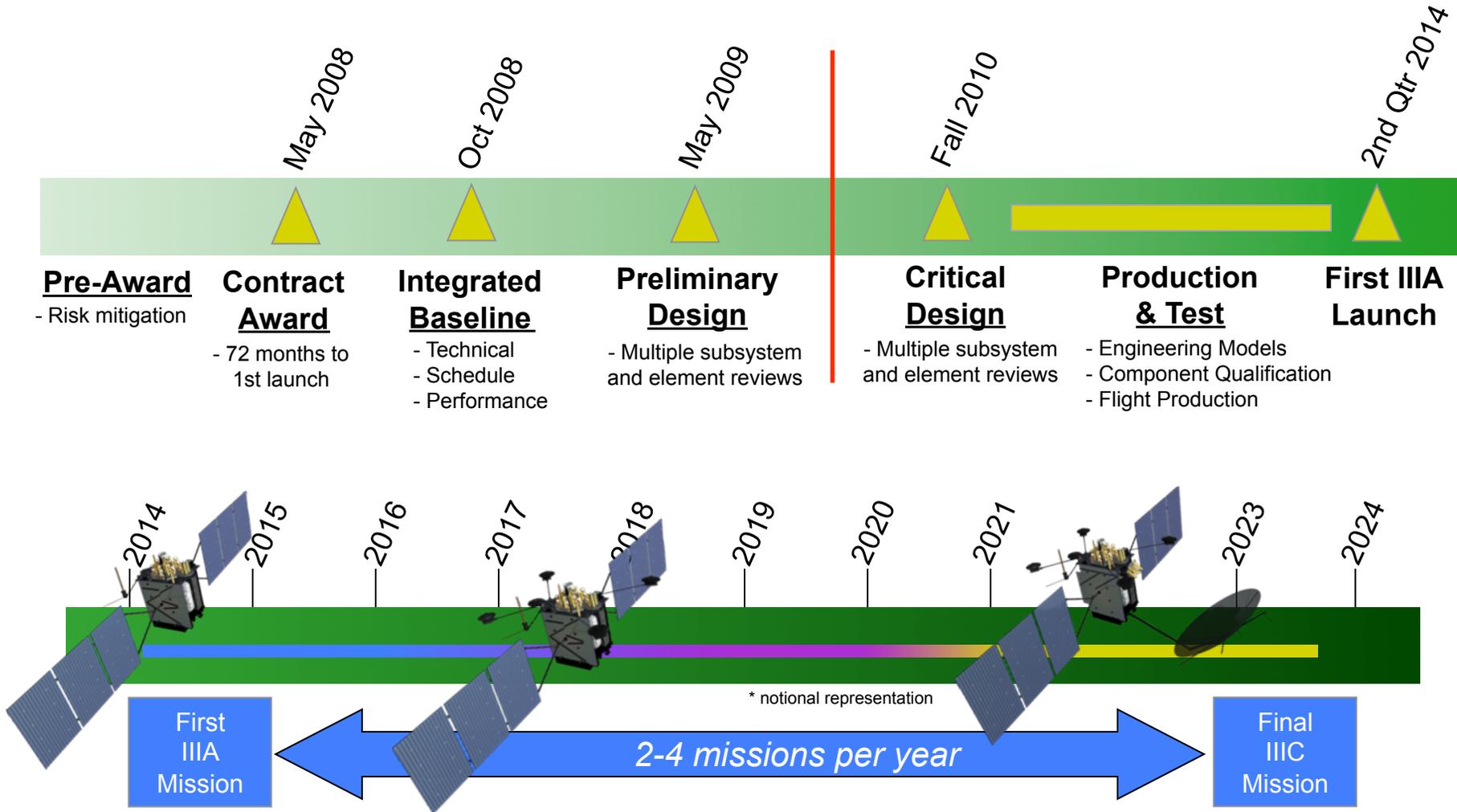
GPS IIIC (16 planned)

- High-power spot beam
 - Provides increased anti-jamming capability for warfighter

Flexible transition and content of future blocks reduces program risk



GPS III Schedule



Preliminary Design: On-cost, on-schedule, meets/exceeds technical specs



- Closing Comments

