

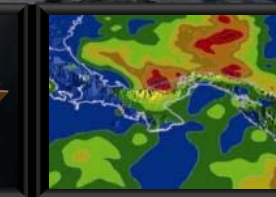
National Aeronautics and Space Administration



Space Launch System (SLS) Program Vehicle Data Summary

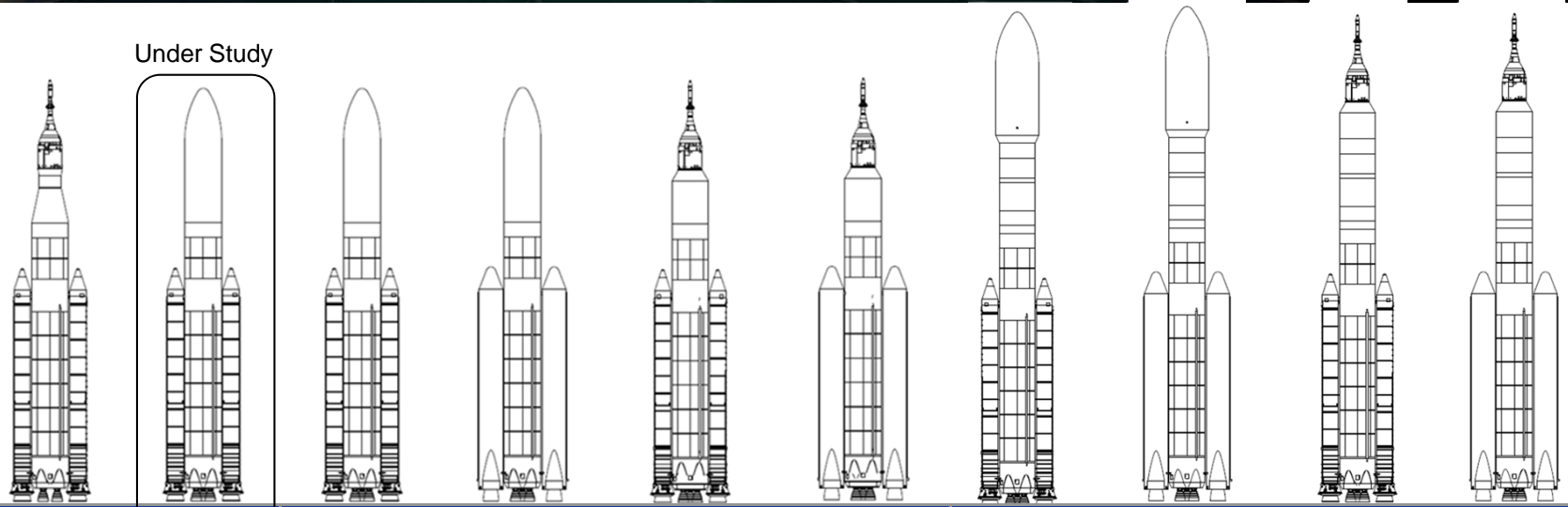


Space Launch System



www.nasa.gov

SLS Vehicle Configuration



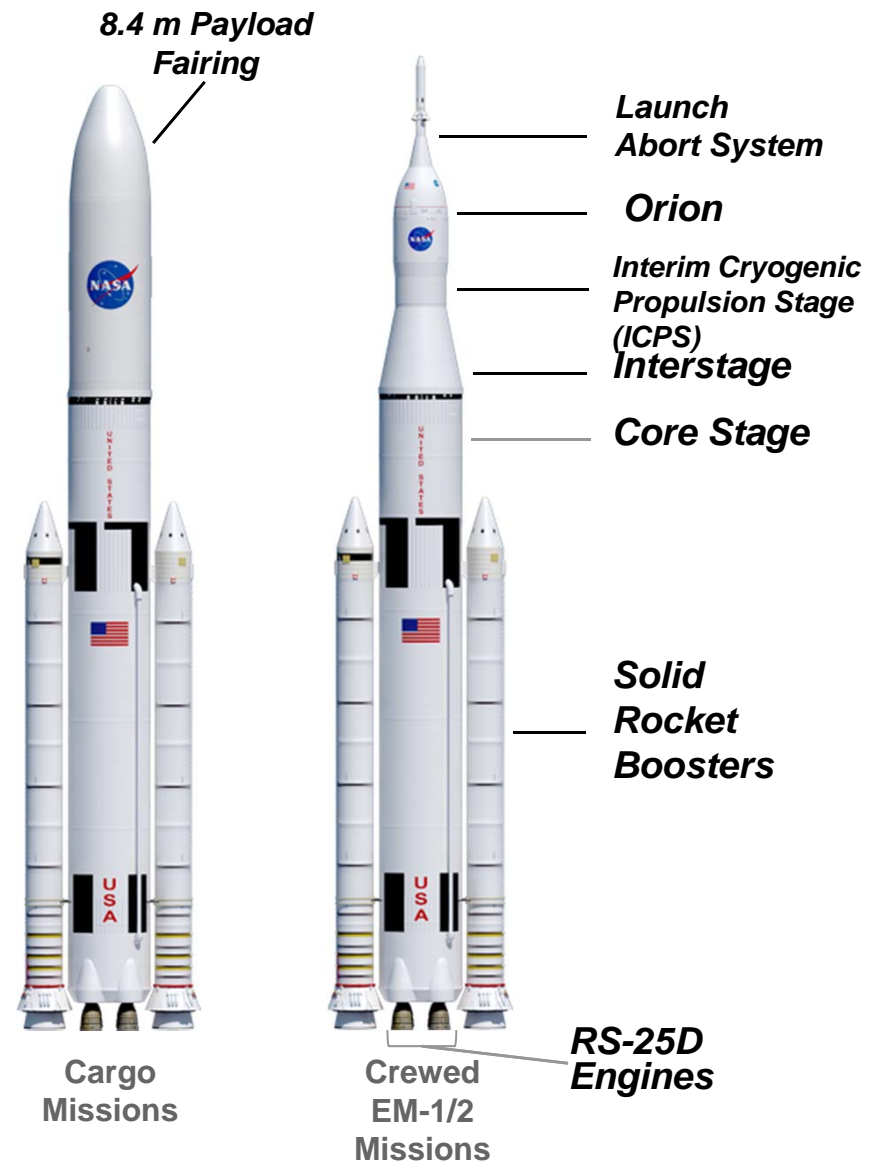
Under Study

	Block 1 61.7t (-110 km x 1806 km) @ 28.5 deg inclination		Block 1A 105t (-110 X 241 km)				Block 2 130t (-110 X 241 km)			
Core	8.4 m Common Core 4 RS-25D	8.4 m Common Core 4 RS-25D	8.4 m Common Core 4 RS-25D/E	8.4 m Common Core 4 RS-25D/E	8.4 m Common Core 4 RS-25D/E	8.4 m Common Core 4 RS-25D/E	8.4 m Common Core 5 RS-25E	8.4 m Common Core 5 RS-25E	8.4 m Common Core 5 RS-25E	8.4 m Common Core 5 RS-25E
Booster	RSRMV	RSRMV	Adv Solid	Adv Liquid	Adv Solid	Adv Liquid	Adv Solid	Adv Liquid	Adv Solid	Adv Liquid
US	None	None	None	None	None	None	8.4 m 2 J-2X	8.4 m 2 J-2X	8.4 m 2 J-2X	8.4 m 2 J-2X
Spacecraft / Payload	ICPS, MPCV	8.4 m Shrouded P/L	8.4 m Shrouded P/L	8.4 m Shrouded P/L	MPCV +8.4m Shrouded P/L	MPCV + 8.4 m Shrouded P/L	10 m Shrouded P/L	10 m Shrouded P/L	MPCV + 8.4 m Shrouded P/L	MPCV + 8.4 m Shrouded P/L
Internal Dynamic Envelope	n/a w/ Orion	7.5 m dia X 19.36 m + ogive	7.5 m dia X 19.36 m + ogive	7.5 m dia X 19.36 m + ogive	TBD	TBD	9.1 m dia X 17.20 m + ogive	9.1 m dia X 17.20 m + ogive	TBD	TBD

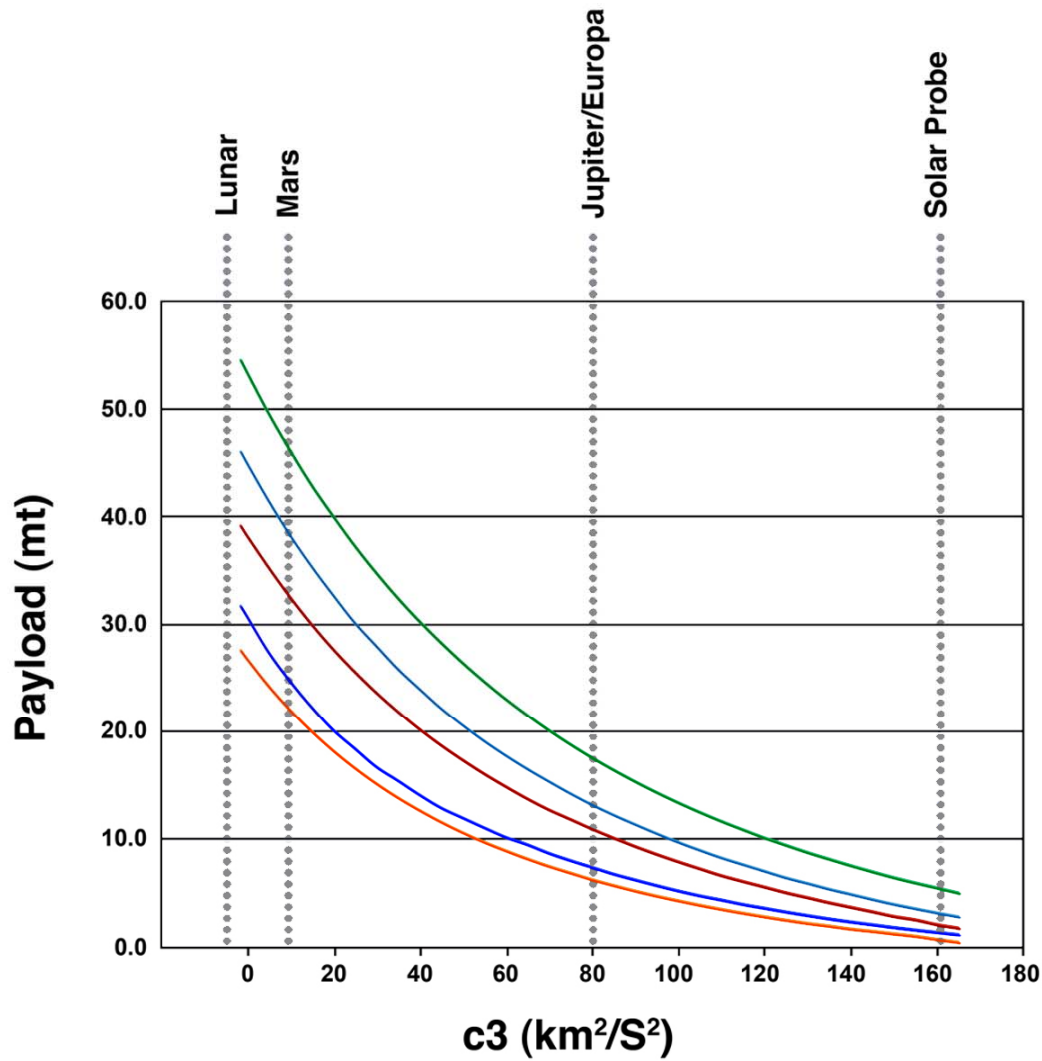
SLS Block 1 Configuration



Delivery Orbit	-110 km x 1,806 km @ 28.5 deg incl (reference: -110 x 241 km @ 28.5 deg)
Delivered Mass to Orbit	61.7 metric ton (includes ICPS mass) (81.0 metric ton to reference orbit)
Gross Liftoff Mass	2,600 metric ton
Overall Height	(321 ft)
Thrust/Weight at Liftoff	1.4 g's
Maximum Acceleration	5.0 g's @ 475 seconds
Maximum Dynamic Pressure	31.7 kPa (660 psf) @ 76 seconds
ICPS	
Impulse Propellant	~27,000 kg
Burnout Mass	~4,000 kg
Engine	LO2/LH2 Expander Cycle
Vacuum Thrust	110,000 N
Vacuum Specific Impulse	460 seconds
Core Stage	
Engine	RS-25D (4 utilized)
Vacuum Thrust	2.3M N @ 109% Power Level
Solid Rocket Boosters	
Propellant	PBAN
Maximum thrust	3.5M lbf @ 1 sec



C3 Performance Data Summary



Available Dynamic Envelope
(excludes CPS volume):
2.9 m x 7.5 m +
11 m X 7.5 m tangent ogive

- Block 1 – ICPS1
- Block 1 – ICPS2
- Block 1A – ICPS1
- Block 1A – ICPS2
- Block 2 – ICPS2