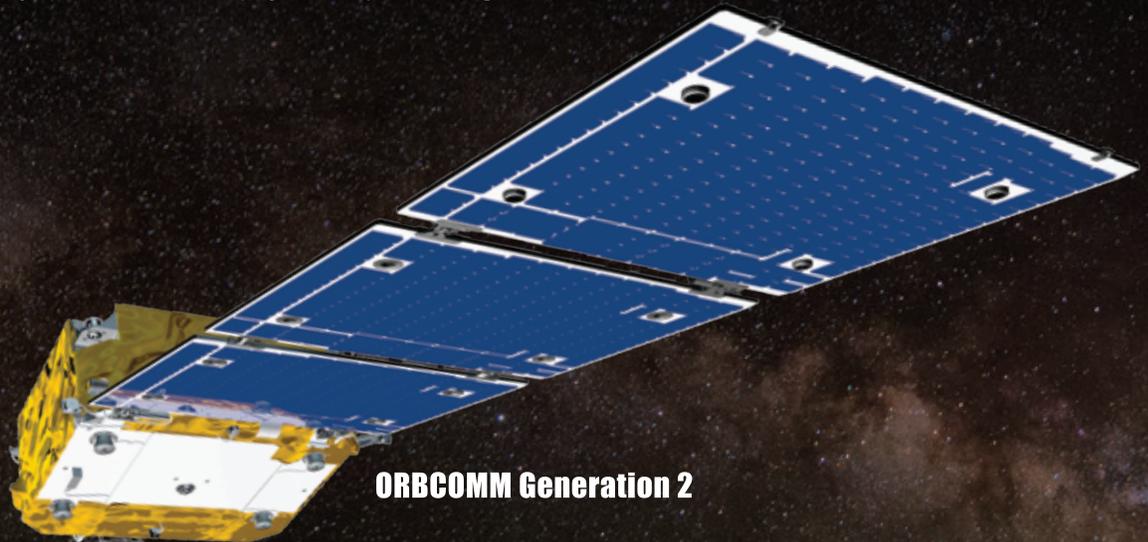


Spacecraft Systems

SN-100 Microsat: Flight-Proven

Sierra Nevada Corporation's (SNC) Space Systems a business area of aerospace and defense company SNC, provides our customers with a highly-capable, flight-proven, low-cost 150 kg class satellite, tailorable for a variety of missions. Seventeen satellites were manufactured by SNC for the ORBCOMM Generation 2 constellation, with six successfully launched in 2014 and the remaining eleven successfully launched in 2015 (first prototype was launched in 2012). The SN-100 design enables constellation-scale production and increased flexibility for missions with payloads up to 100 kg.



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Spacecraft Systems

SN-100 Microsat: Flight-Proven

ORBCOMM Generation 2 (OG2)

OG2 is a commercial satellite production program to design, manufacture and deliver 17 low-Earth-orbit (LEO) communication satellites, boosting ORBCOMM's machine-to-machine (M2M) and Automatic Identification Service (AIS) capacity. SNC is the prime contractor for OG2, providing both the SN-100 spacecraft platform and advanced software-defined radio communication payload. All aspects of payload integration, system-level performance and environmental test are done in-house at SNC's Louisville, Colorado facility.

OG2 Program Highlights

- 50% fewer satellites carry 12x more capacity than the first generation system
- Automatic Identification System enables constellation to track >150,000 vessels a day
- Augmentation of the original constellation reduces coverage gaps and latency

SN-100 Microsat Features

- Low-cost, three-axis stabilized bus (150 kg class)
- Modular design streamlines bus and payload integration
- Flexible payload accommodation capability

SN-100 Microsat Capabilities

SN-100 Platform Supports a Variety of Mission Types		Lower Pointing Precision (Comm Mission Variant)	Higher Pointing Precision (Imaging Mission Variant)
Life	Years	5	5
Payload Mass	Kilograms	100	100
Bus Mass	Kilograms	103	103
Bus Power (OAP)	Watts	110	110
EOL S/C Power(OAP)	Watts	400	500
P/L Power Available	Watts	200	200 - 400
Pointing Control	Degrees	±0.1 (Pitch, Roll) ±1.1 (Yaw)	0.01
Pointing Knowledge	Degrees	±1.3 (Pitch, Roll), ±5.8 (Yaw)	0.005
Slew Rate	Degrees/Second	0.1 (Pitch, Roll), 0.8 (Yaw)	>1
Comm Up/Downlink Band	Megabits Per Second	USN/SGLS/VHF (selectable by customer)	4+ (selectable by customer)
Propulsion Type, Propellant Mass	Type, Kilograms	Monoprop, 10	Monoprop, 10
Launch Vehicle Compatibility		Minotaur 1/4, Falcon 9, ESPA	Minotaur 1/4, Falcon 9, ESPA



The final operational OG2 launch in December 2015 was the first time three Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapters (ESPA) were stacked for a constellation deployment.