General Dynamics’ high-speed gimbal uses high-torque, direct-drive brushless DC motors to deliver ultra fast point-to-point movement with milli-radian accuracy. The high-speed gimbal is ideal for applications requiring rapid response, including rocket or artillery countermeasures.

A 90-degree azimuth, 45-degree elevation combined move can be performed in less than 20 milliseconds, including settle. The gold-coated aluminum mirror is supported on either side by a yoke that comprises the elevation drive assembly. Its unique design conceals all elevation motor and encoder cables. The base of the mechanism contains the azimuth drive system and consists of a hollow shaft to permit a laser beam to pass through the center and strike the mirror from below. High-precision rotary position sensors provide a complete feedback control system.

A trickle charge is provided to a high voltage capacitor bank, which is discharged to provide punch when a high-speed move is commanded. The hardware consists of a 16-bit 150 MHz Digital Signal Processor and 16-bit dual Digital-to-Analog Converters with a settle time of less than 2 microseconds. Serial flash allows for in-the-field code updates.