



*DEFENSE & SECURITY SOLUTIONS*

**KRATOS**<sup>®</sup>  
FROM STRENGTH TO SUCCESS

Kratos Defense & Security Solutions, Inc.

Investor Briefing

August 2019





***Technology Company in National Security Industry***

***Product and System Focused***

***Proven Leader in Rapidly Developing, Demonstrating and Fielding Affordable, Leading Technology Systems***

***Focused on “Leading Technology” Not “Bleeding Technology” = Reduced Financial, Schedule and Delivery Risk***

# Kratos Defense & Security Solutions Overview



## Unmanned Systems



- High performance jet powered unmanned aerial drone systems
  - Aerial drone target systems
  - Tactical combat drones
- Rail launched and parachute recovered (runway independent)
- Rapid mission turn around
- Low Cost / Affordable

## Satellite Communications



- Leader in providing secure management, delivery and distribution of data and information from space and land
- Used by more than 75% of the world's satellite operators and 85% of U.S.-based space missions
- C<sup>3</sup>, RFI detection and mitigation products

## Training Systems



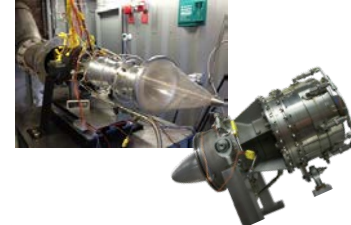
- Offers systems & solutions across the entire training continuum
- Exhibit knowledge and skills to develop a lifecycle training program to support specific training needs
- Leading training systems & solutions provider for ground, air and sea platforms

## Microwave Electronics



- One of the largest international independent microwave solutions developers
- Products used in a variety of demanding environments, including airborne, ground and naval systems; missiles, radar, aircraft, guided munitions

## Turbine Technologies



- Leading technology and innovation leader in advanced turbine engines
- Development and production of small, affordable, high-performance, jet engines for next generation of tactical weapon systems and tactical jet unmanned aerial systems (UAS)

## Ballistic Missile Defense Targets



## Laser Systems



## Patriot System



## THAAD System



## Hypersonic Systems



# Disruptive Defense Technologies for Drones, Space, Missile Defense and Hypersonics



*Kratos owns substantially all of the key IP related to its core portfolio of products*

## Tactical & Target Drones

*Kratos has invested over \$100mm in the last several years developing a robust suite of high-performance, jet powered UAVs, leading to the ownership of critical IP that provides competitive advantages and creates high barriers to entry*

- ✓ Autonomous capabilities
- ✓ Ability to rapidly develop / deliver working systems
- ✓ Vertical integration
- ✓ Rail launched (runway independent)
- ✓ Low cost / affordable
- ✓ Open architecture for seamless payload integration



## Ballistic Missile Targets



- ✓ Exclusive perpetual rights to Oriole solid rocket motor
- ✓ Designs affordable control systems, countermeasures, decoys and other classified systems
- ✓ Integrates existing solid rocket motors to meet customer requirements

## Satellite & Space Ground Systems



- ✓ Integrated Common Data Link technology
- ✓ Only commercially available RF over IP transport with data restoration solution
- ✓ Space Situational Awareness Network
- ✓ Proprietary space network roaming capability across satellites and bands

## Hypersonic Systems

- ✓ Multiple stack hypersonic motor technology
- ✓ Hypersonic vehicle testing
- ✓ MDA hypersonic target vehicle development





# Kratos – Aligned with National Security Priority Areas



- *After Years of Decline, Defense and Security Budgets are Increasing Globally*
- *A Recapitalization of Strategic Weapon Systems to Address Peer Threats is Underway for the U.S. and our Allies*
- *Priority Areas for Increased Budgets and Technology Advancement Include:*
  - *Unmanned Systems & Artificial Intelligence*
  - *Satellite Systems and the Space Segment*
  - *Electronic Warfare, Missile and Radar Systems*
  - *Missile Defense, Hypersonic Systems and Directed Energy*
  - *Lethality, Operational Readiness and Training*
  - *Science and Technology*
  - *Strategic Triad*

*Kratos is Well Positioned in Virtually All of These Priority Areas!*

# Kratos – Unmanned Systems



## Kratos – Unmanned Systems



- *Recognized Leader in Affordable High Performance, Jet Powered Unmanned Aerial Drone Systems*
- *4 Systems in Production → Ramping*
- *6 Systems Under Development Contracts/ Programs*
- *3 Systems Expected to be Under Development Contract by 12/31/19*
- *2 Systems Expected to be Under Development Contract in 2020*

# Industry Leader in High Performance Unmanned Aerial Target Drone Systems

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BQM-177



BQM-167



MQM-178

- Kratos is the Leader in Development and Production of High Performance Unmanned Aerial Drone Target Systems
- Kratos' Target Drone Systems Represent the Most Advanced Aerial Threats of Our Adversaries and Operationally Test U.S. and Allies' Weapon Systems
- Kratos' High Performance Jet Powered Unmanned Aerial Drone Systems are The Highest Performance UAVs In the World
- Kratos' UASs are Rail Launched and Parachute Recovered, i.e., Runway Independent



# Kratos BQM-177A Receives Initial Operating Capability from U.S. Navy (NAVAIR)



## **BQM-177A target achieves initial operational capability**

Published: Feb 28, 2019 Naval Air Systems Command, Patuxent River, Md.

The U.S. Navy's next-generation Sub-Sonic Aerial Target (SSAT), BQM-177A, reached Initial Operational Capability (IOC) Feb. 27 and will begin land-based operations in Point Mugu, California.

# Kratos – High Performance, Jet Powered Unmanned Combat Aerial System





# Proven Approach to Rapid-Development of Affordable, Working Systems



*Kratos distinguishes itself from competitors with its demonstrated ability to rapidly design, develop and deliver working systems and platforms to its customers at an affordable cost*

## Kratos Leverages its Unique Culture to Rapidly Deliver Affordable, Complete Systems

### Iterative Approach

- ✓ Leverages **past program experience** to deliver continuous and **incremental improvements**
- ✓ Success on early programs **builds trust** in capabilities and helps **win subsequent awards**

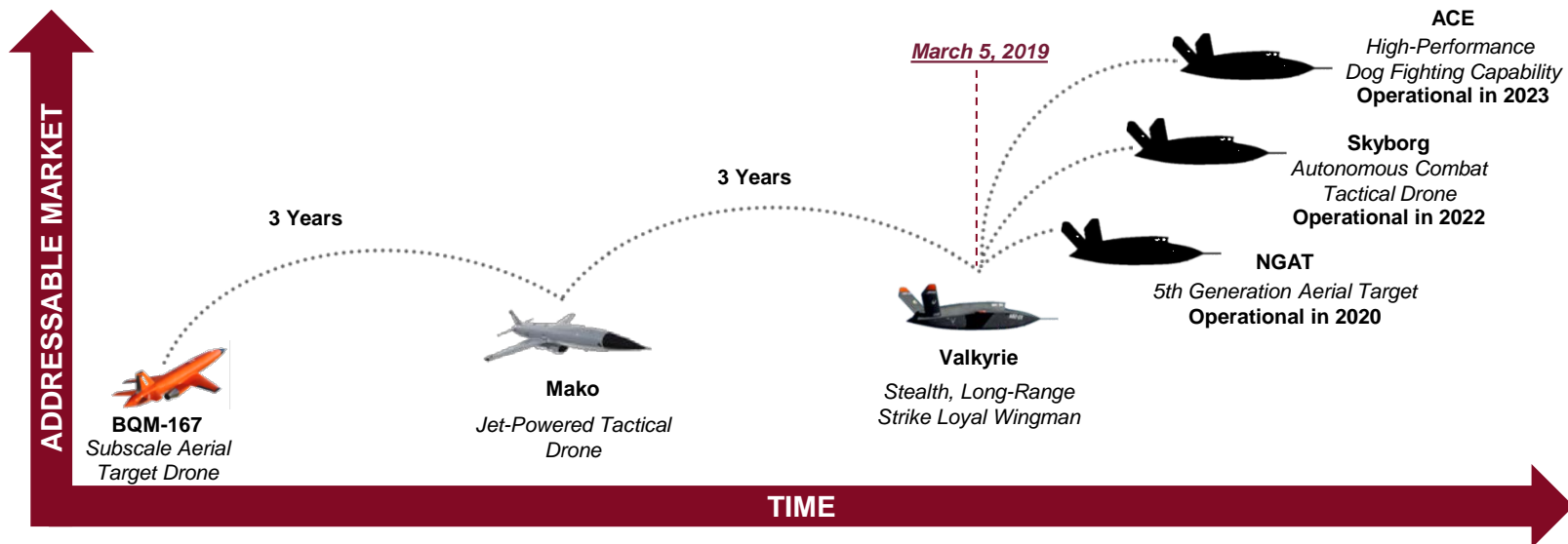
### Leading v. Bleeding Edge

- ✓ Emphasizes **use of proven technologies** to **reduce cost and risk** without compromising capabilities
- ✓ Years of experience across its portfolio has made **leveraging commercial technologies** a core competency

### Supply Chain Efficiency

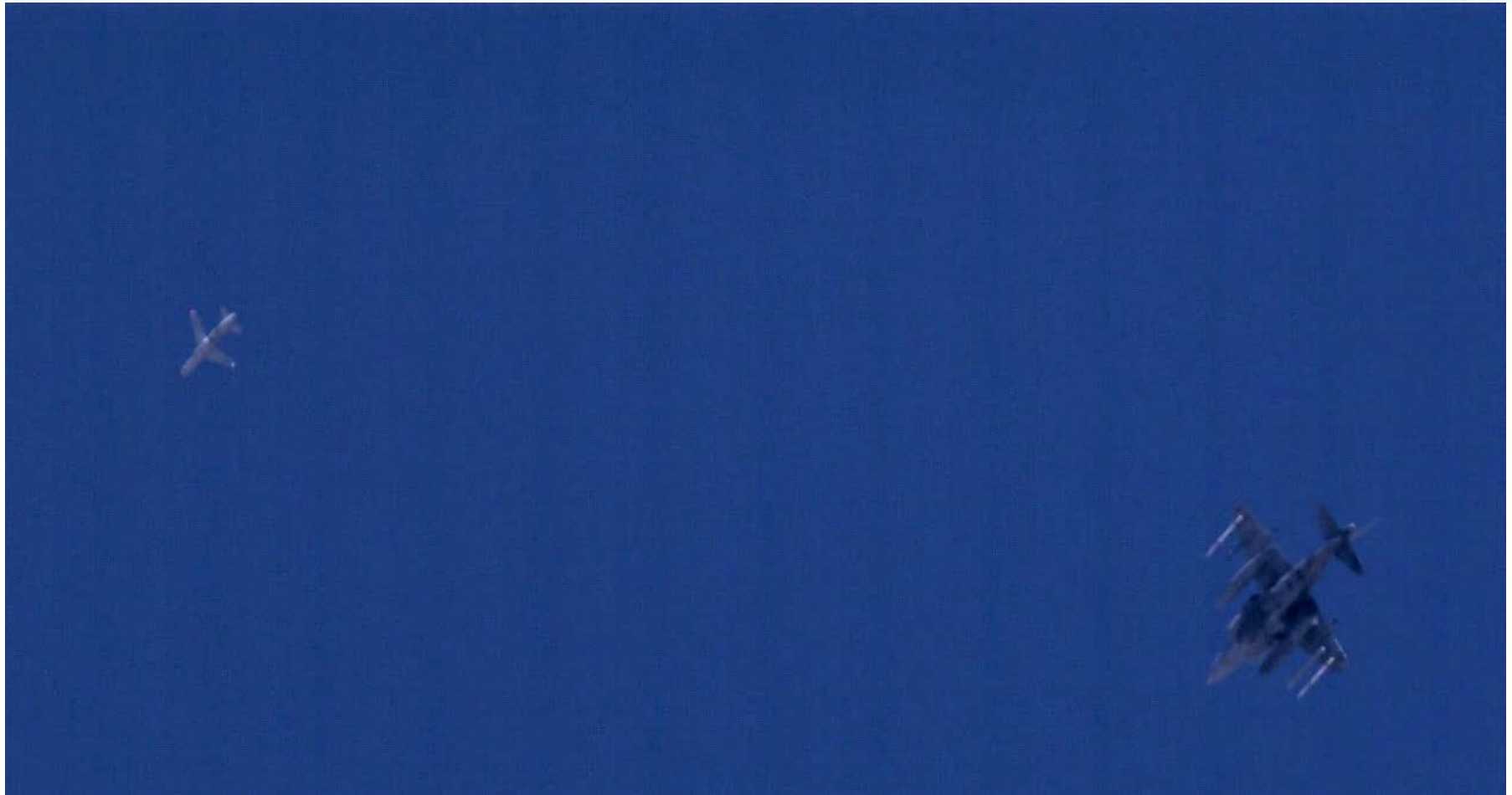
- ✓ **Commonality in supply chain** across avionics, electronics and other subsystems and components further **reduces cost**
- ✓ Vertically integrated manufacturing **reduces development time** for **new iterations** and **further reduces cost**

## Rapid-Development Case Study: Kratos' Leading Unmanned Platforms



# Kratos – UCAS “Loyal Wingman” to Manned Aircraft – Low Cost, High Performance Force Multiplier

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See YouTube Video – Search “UTAP-22” and enjoy



# Kratos XQ-58A Valkyrie



# Industry Leader in High Performance Tactical Drones



***Kratos' unmanned tactical drones align with defense mission requirements and budget trends and would resolve the U.S. Air Force's current constraints***

## Current Landscape

- U.S. fighter and attack aircraft fleet has been shrinking for decades and has been focused on asymmetric warfare and terrorism
- Shortage of highly trained pilots to address peer threats, as well as maintenance and repair shortfalls, has pressured readiness
- A2/AD environments and increasing adversary lethality pose an increasing risk to U.S. assets, including manned aircraft and ships
- DoD focused on attritable, unmanned systems to increase force quantity, defeat enemy air defenses and aircraft, and bolster the capabilities of its limited number of manned aircraft

## Representative Kratos' Solutions

### Valkyrie is a Step Change in Aerial Fighter Jet Capability

- ✓ Loyal wingman to F-35 and F-15EX
- ✓ High subsonic flight at long distances without refueling
- ✓ Rail take-offs and parachute landings do not require runway or aircraft carrier
- ✓ Launchable by fighter, bomber, cargo and other platforms from outside combat zone
- ✓ High altitude and nap-of-the-earth flight
- ✓ Higher, sustained g-force tolerance than manned jets

### Significantly Lower Cost than Alternatives

- ✓ Proven rapid, low-cost design and manufacturing capabilities derived from production of low-cost aerial target drones and successful tests of next-gen tactical platforms
- ✓ Vertically integrated manufacturing further increases speed, and reduces cost & risks
- ✓ Tactical drones priced for as little as \$1-3mm, making them "attritable" – inexpensive enough in both dollars and lives to risk losing in dangerous missions

## Kratos' Solutions



### **XQ-58A "Valkyrie"**

Cost-effective way to augment the USAF's fleet with additional quantities, firepower and sensors by serving as a Loyal Wingman. Valkyrie has been approved for potential marketing to the U.K., Australia, Japan and Canada

### **"Gremlins"**

Intended to operate in a swarm, Gremlin is capable of ISR, arms delivery, jamming / SEAD and more. Gremlin is air deployed and recovered, driving down mission cost and increasing range



### **UTAP-22 "Mako" (Unmanned Tactical Aerial Platform)**

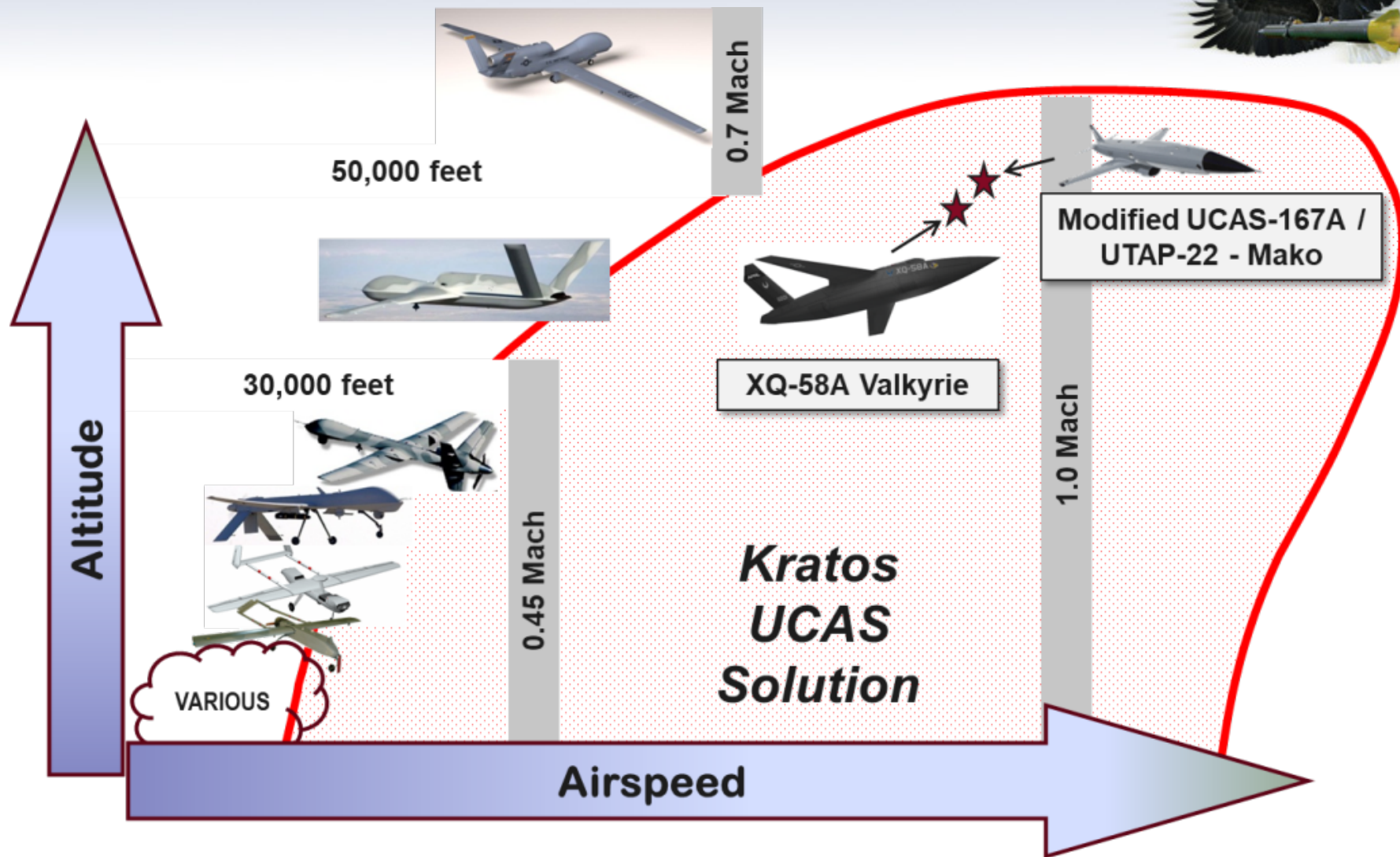
Operational tactical drone and testbed for tactical unmanned capabilities. Approved for potential sale to 8 allied countries.



### **"Program F"**

Program F is executing a series of test flights, and a production order is expected in 2020 after successful completion of demonstration program

# Two UAS Platforms Now in Fighter Envelope – Both Kratos



KRATOS PROPRIETARY INFORMATION – COMPETITION SENSITIVE DATA.

# UCAS Opportunity, Recent Contract Wins Provide Large Future Upside Growth Potential

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LCASD



Mako



GREMLINS



Program F



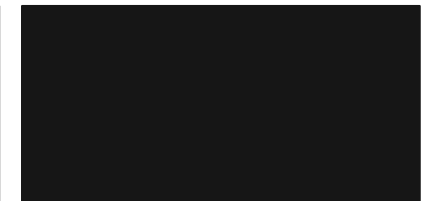
Program Thanatos



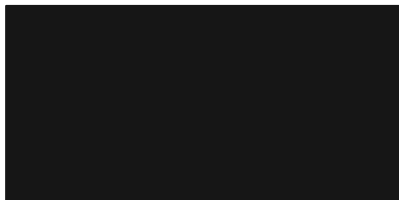
Program Aethon



Program Spartan



Project Apollo



Program Athena



Projects A & Z

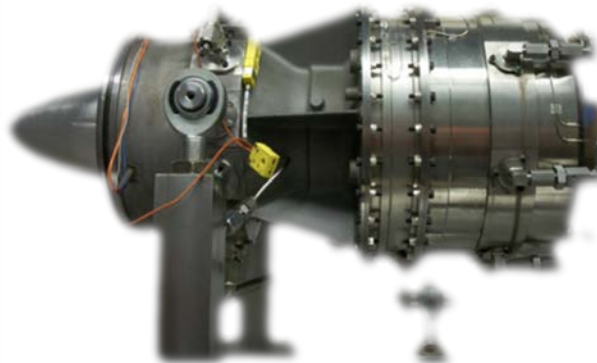


Project Omega

## Kratos Tactical Drone Portfolio

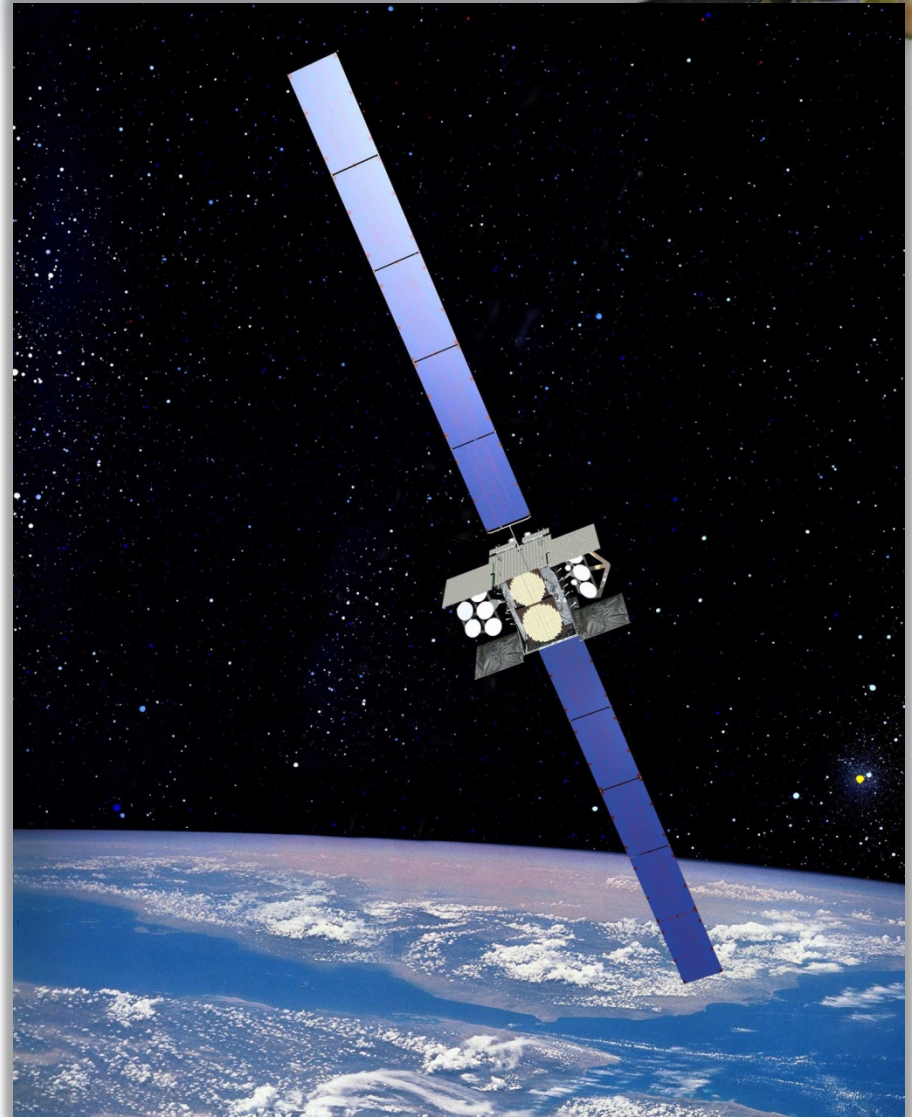


*Kratos Turbine Technologies is Focused on the Development and Production of Small, Affordable, High Performance Jet Engines for the Next Generation of Tactical Weapon Systems and Tactical Jet Powered UAS*





# *Satellite Communications*



# Leader in Satellite Communications, Command, Control and RF Interference Mitigation



## Core Capabilities

- Group-based command and control systems
- Satellite monitoring systems
- Signal intelligence systems
- Radio Frequency Identification (“RFID”) systems
- Identification of and Geosynchronous Orbit (“GEO”) location of Rapid Fielding Initiative (“RFI”) threats
- Telemetry processing systems
  - Specialized cyber products for govt. agency customers

## Attractive Growth Drivers

- U.S. Air Force space funding request is expected to increase
- Emerging space and cyber threats from adversaries
- Hundreds / thousands of new nano, cube and small satellites planned launches
- Drive to commercialization for cost, resiliency and capacity
- Increasing demand for bandwidth from Unmanned Aerial Vehicles (“UAVs”), intelligence, surveillance and reconnaissance

## Market Leading Solution

- Used by more than 75% of the largest satellite operators and 85% of U.S. space missions
- Market leading Commercial-off-the-shelf products (“COTS”), best-of-breed industry tools, custom developed modular software, and top notch engineering services
- An industry leader in RF interference identification, monitoring, GEO location and related cyber security solutions including Kratos owned and operated global surveillance network
- Enhanced protection through continuous monitoring, cloud security and operational and risk management



***Among the leaders in spot beam monitoring & signal acquisition***



# Kratos – Major Satellite Programs Supported



Space Based Infra  
Red System  
(SBIRS)



Advanced Extreme  
High Frequency  
(AEHF)



Mobile User  
Objective System  
(MUOS)



Wide Band  
Global Satellite  
(WGS)



Global Positioning  
System  
(GPS)



# Kratos – Supporting the Mission of Space Dominance

## Space Situational Awareness – Unique Kratos Owned and Operated Global Network & Strategic Asset

The only commercial global network providing RF Spectral Services that brings enhanced insight against an array of threats

- Persistent Surveillance
- Real Time Detection
- Anomaly Identification
- Satellite Health, Usage and Attribution

“Recent Large Multi-Year Sole Source Award”





# *Microwave Electronics*

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# Kratos – Microwave Electronics

## Major Products



SSPAs AND AMPLIFIERS



FREQUENCY CONVERTERS



SENSORS



TRANSCIVERS/  
DATA LINKS



SOURCES



GPS IMMUNE

CONTROL COMPONENTS



INTEGRATED MICROWAVE ASSEMBLIES



MILLIMETER WAVE



BEAM FORMING MODULES



RF FRONT ENDS AND DLVAs



# Kratos – Microwave Electronics



- One of the Largest Independent Microwave Businesses in the Industry
- Microwave Sub Systems and Components
- Key Customers Include Israeli Aerospace Industries (IAI), Rafael, SAAB, India, BAE, Etc.
- Supports a Significant Number of Israeli Radar and Missile Systems:

- Iron Dome
- Barak
- Arrow
- Sling of David
- Spyder
- Etc.



Iron Dome



Barak



Arrow III



Gripen Fighter



Sling of David

- Electronic Warfare Suite of Swedish Gripen Fighter
- Working on Various Indian Missile, Radar and Other Systems
- F-15 Electronic Warfare System
- F-16 Electronic Warfare System



F-15



## Israel's Air Defense Layers

Radar: Data Link

ARROW 3  
ANTI-BALLISTIC MISSILE  
ENGAGEMENT OUTSIDE OF THE ATMOSPHERE

Radar: IMA  
Missile: GPS  
Miniature  
Transceiver

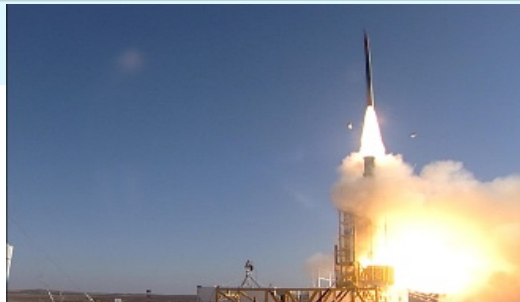
- ARROW 2  
- DAVID'S SLING  
MEDIUM RANGE (120 MILES)  
ENGAGEMENT WITHIN THE ATMOSPHERE

Arrow 2:  
SSPA  
David's Sling:  
• 2 IMAs  
• T/R Module

IRON DOME  
SHORT RANGE (45 MILES)  
ALTITUDE OF 33,000 FEET



**IRON DOME**



**DAVID'S SLING**



**ARROW 3**



# *Defense & Rocket Support Solutions*

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“Kratos’ DRSS Division is Well Positioned for Increased Funding in Ballistic Missile Defense, High Power Directed Energy Laser Systems, Hypersonic Vehicles, Etc.”














# Kratos Rapid Launch Vehicle Family

2010 OSD Packard Award Winner for Proven Rapid Delivery of Vehicles



Average cycle time for all vehicles is 6 to 9 months from requirement to flight test

Proven Rapid Company Response Time for DoD Needs

	ARAV Name	MDA Name	Launch   Intercept			
Kratos Hypersonic Vehicles	 SS Lynx	SSL	6   0	MK104 Lynx		
	 SS IO		5   0	Impr. Orion		
	 T Lynx		4   0	MK104 Lynx	MK70 Terrier	
	 T IO		10   0	Impr. Orion	MK70 Terrier	
HySHOT, FASST, HIFIRE	 A	T4-A	33   10	Orion	MK70 Terrier	
	 B	T4-B	27   6	GEM-22 Oriole	MK70 Terrier	
Supporting SCO Effort	 B(U)	T4-B	4   0	GEM-22 Oriole	MK70 Terrier	
	 SR			Oriole TVC	MK12 Terrier	
HyCause	 G	T4-G		Oriole TVC	MK11 Talos	
	 SS GO			Oriole TVC		
HIFIRE	 C & CZ	T4-C	8   2	Castor IA	MK11 Talos	
	 TTO	T4-E	6   2	GEM-22 Oriole	MK70 Terrier	MK70 Terrier
	 M		1   1	GEM-22 Oriole	Castor IA	MK11 Talos

104 | 20

Proven Flight Pedigree (104 for 104 Successful Launches) Including BMD Target and Hypersonic Vehicles\*\*

\*\*Per (Spring 2018): Additional 5 launches since table was made

DEFENSE ACQUISITION EXECUTIVE



**DAVID PACKARD**  
EXCELLENCE IN ACQUISITION

Presented to  
**Aegis Readiness Assessment Vehicle Team**

The Aegis Readiness Assessment Vehicle Team is presented the David Packard Excellence in Acquisition Award for its innovative acquisition practices in building, integrating and launching eight ballistic missile targets, including a new highly sophisticated vehicle that provided the United States with the ability to test against complicated threat representative countermeasures. The ARAV's acquisition strategy incorporated maximum reuse of assets and procedures, ensuring relatively inexpensive, highly responsive vehicles that were mostly already flight proven, resulting in new vehicle targets that are over 85% less costly than the targets they replaced. When the requirement came to develop an additional member of the ARAV family, the ARAV-C, in response to an urgent need for targets that emulate the most sophisticated preponderant threats, the ARAV Team responded with a design within four months. The design effort alone, which had to account for new performance characteristics – including the ability to deploy countermeasures – was unparalleled, and the subsequent deployment of the final target in eighteen months was a previously unachieved accomplishment within the MDA. The resultant flight vehicle was delivered ahead of even the most aggressive schedule and cost \$23M less than the only other proposed alternative. Further, the ARAV Team then launched five targets within a four week period, including launches supporting the Japanese and Korean ballistic missile defense programs, illustrating international support for and confidence in the reliability and capability of the ARAV program, and that of the ARAV-C. As a result, the Aegis Ballistic Missile Defense program made significant strides in its development of new and more capable weapons systems designed to counter the most advance ballistic missile threats.

November 2, 2010  
Date



Under Secretary of Defense  
(Acquisition, Technology and Logistics)



# C5ISR Major Programs



**Patriot Missile System**  
*Radar and C5ISR Units*



**LCS Combat Ship**  
*Mission Modules*



**Q-53 Radar System**  
*Operations Control Unit*



**CPP/ M-SHORAD**  
*Command Post Platform*



**TPS-77 Radar**  
*Modular Radar Equipment Units*



**THAAD AN/TPY-2 Radar**  
*Electronic Equipment Unit (EEU)*



**U.S. DoS HATS**  
*Blast Resistant Safe Havens*



**ROTHR Radar**  
*Radar Equipment Complexes*

**Kratos Supports These Major Programs With Proven Solutions**





# *Training Systems & Solutions*



# Industry Leader in Aviation Operations & Maintenance Training Systems



CH-47 Avionics Trainer



UH-60 Remove/Replace Trainer



CH-53K Maintenance Training System



UH-60 Avionics Trainer

## UH-60, CH-47 & CH-53 Full Fidelity and Part Task Maintenance Trainers

UH-60 Landing Gear & Braking System Trainer



Aviation Basic Electronics Trainer



UH-60 Rotor Brake Trainer

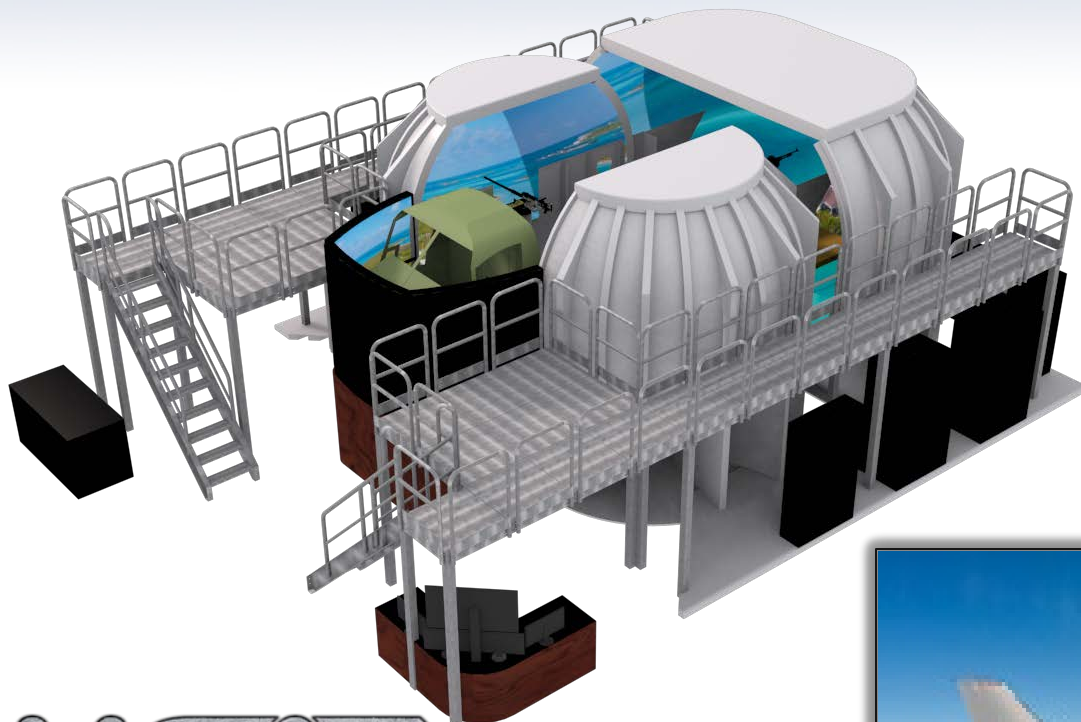


UH-60 Avionic Wiring System Trainer



UH-60 Stabilator Trainer

# Representative Major Training Programs



**MCAT**  
MARINE COMMON  
AIRCREW TRAINING

## KC-46



# Kratos – Second Quarter 2019 Execution Highlights



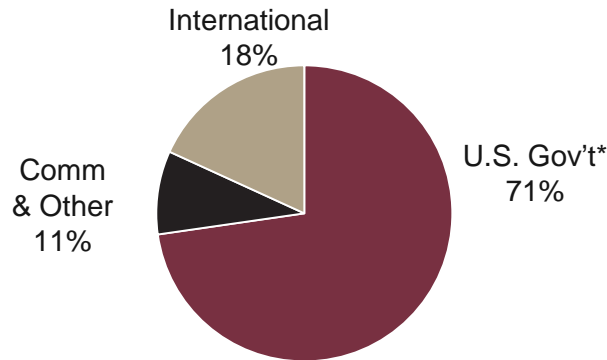
- Revenue growth of 24.3%; organic revenue growth of 12.9% Year over Year
- Q219 Adjusted EBITDA of \$19.2 Million, Year over Year Adjusted EBITDA Growth 23.3%
- Q219 Operating Income \$9.0 Million, up from Operating Income of \$2.6 Million Year-Over-Year
- LTM Adjusted EBITDA of \$71.4 Million
- Q219 Book-To-Bill Ratio 1.0 to 1.0, LTM Book-to-Bill Ratio 1.1 to 1.0
- Qualified Bid and Proposal Pipeline Increased to \$7.6 Billion



# Kratos – Recent Financial Highlights – Q219

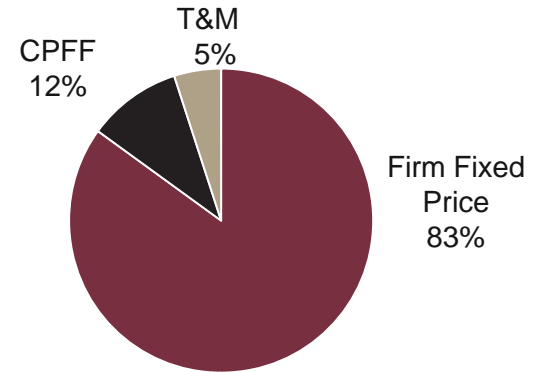


**Six Months ended 6/30/19  
Revenue by Customer**

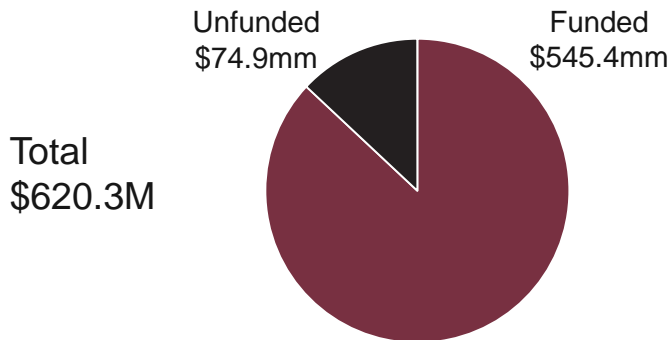


\*Includes Foreign Military Sales (FMS)

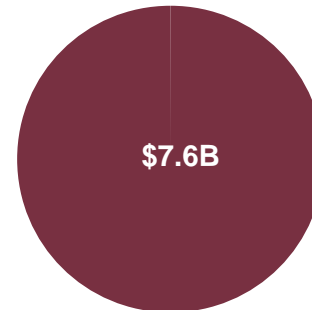
**Six Months ended 6/30/19  
Contract Mix**



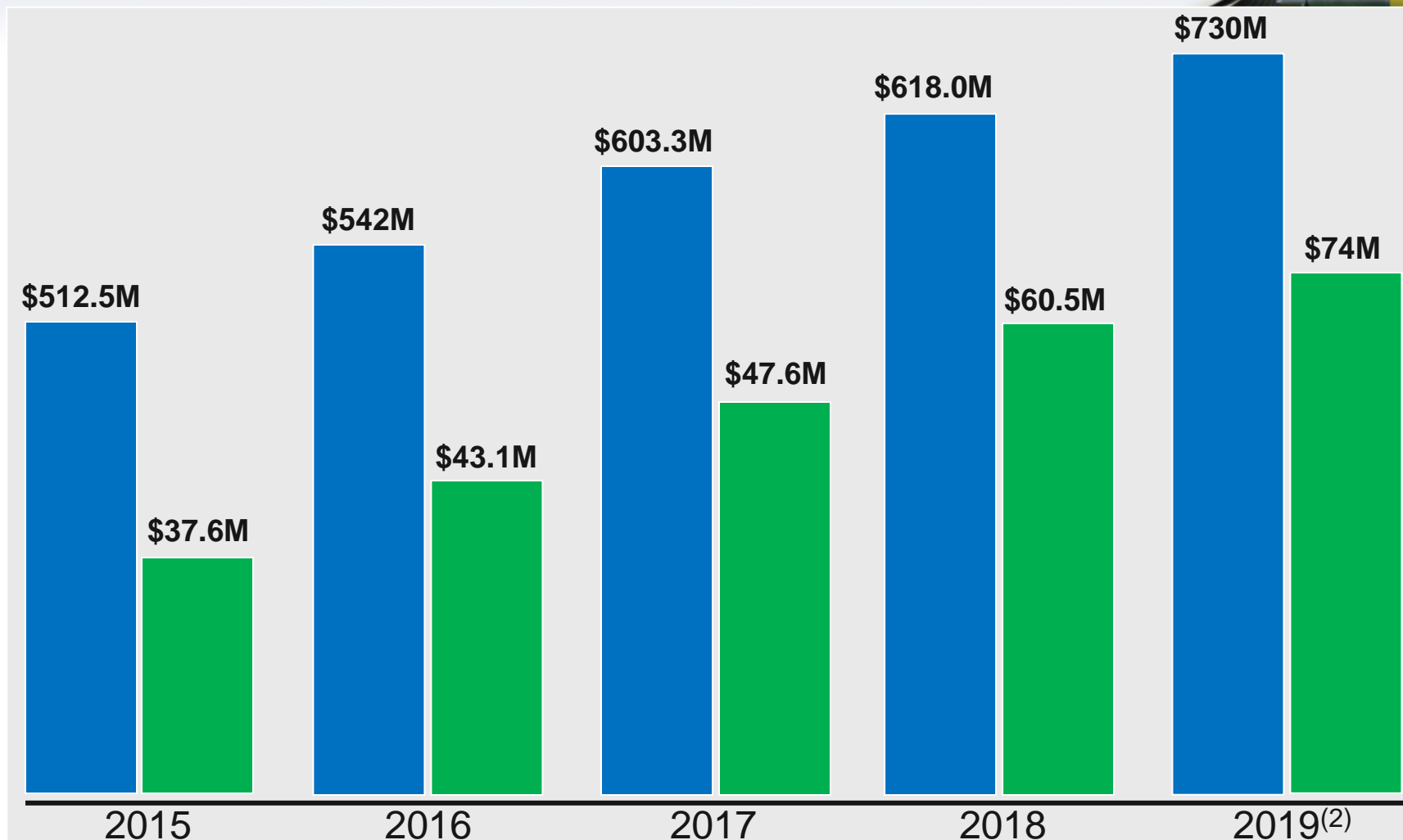
**Backlog ended 6/30/19**



**Bid & Proposal Pipeline ended 6/30/19**



# Kratos – Growth Trajectory<sup>(1)</sup>



Revenue  
EBITDA

(1) Recast to Present PSS as Discontinued Operations

(2) Represents Mid-Point of 2019 Guidance Including Recent FTT Acquisition

# Kratos – Recent Financial Highlights – Q219



	<u>Q219</u>
Gross Debt	\$294.6M
Cash	\$176.2M
Net Debt	\$118.4M
LTM Adjusted EBITDA	\$ 71.4M
Net Leverage	~1.70X

Kratos' Balance Sheet Positioned to Support Expected Future Growth From Multiple New Program Awards

Net Leverage Expected to Continue to Decrease as Revenue, Adjusted EBITDA and Free Cash Flow Increase Going Forward

Focused on Organic Growth with Existing Programs

No Major Acquisitions Planned, Only Potential Small "Tuck-Ins"



- *Substantial Organic Growth Trajectory as Numerous New and Expected Programs Enter Production and Ramp Up*
- *Increased GM\$\$, GM%, Operating Income, EBITDA, EPS and Cash Flow as Business Scales*



# Kratos – Investment Summary



- *Leading Technology National Security System and Product Company*
- *Aligned with U.S. DoD and Allies' National Security Priorities to Address Peer/Near Peer Threats*
- *Industry Leader: High Performance Drones, Missile Defense, Space, Satellite Communications, Microwave Electronics and Training Systems*
- *Recognized Leader in Rapidly Developing, Demonstrating & Fielding Affordable Leading Technology Systems*
- *Entering/Increasing Production on Several Large Programs Expected to Drive Significant Future Organic Revenue, Profit and Cash Flow Growth*