Aviation Supply Chain Intelligence entry for:
Lockheed Martin F-35 Joint Strike Fighter
(data compiled at May 2011)

Picture: Lockheed Martin – F-35C

Purchaser	Supplier	Plant/company location	Work package	Value	Comment	Date awarded
Lockheed Martin/Northrop Grumman/JSF program office	Alliant Techsystems (ATK) Composites	Clearfield, Utah, USA	Upper wing skins	$14 million And $110 million in May 2011	The contract is to produce composite components for low rate initial production (LRIP) Lots 5 through 9 of the F-35 Lightning II - Joint Strike Fighter. The contract includes production of multiple components through the LRIP 9 phase of the program. Under the terms of the contract, ATK will use advanced hand lay-up processing techniques to manufacture upper fixed aft skins for both the carrier variant (CV) and short-take off/vertical landing (STOVL) variant, upper access covers on the CV and conventional take-off and landing (CTOL) variant, and the upper access center covers for the STOVL variant. Production will take place at ATK's Clearfield, Utah facility beginning in 2011	May 2011 and September 2002

					continuing through 2015. In addition to this contract award, ATK manufactures several other composite structures for the F-35, including the seven-piece upper wing skin, lower wing skins, engine nacelle skins, inlet ducts, and the upper wing strap using both automated fiber placement and hand lay-up techniques. In September 2011 Lockheed Martin Aeronautics Company awarded ATK the contract to produce single-segment, all-composite upper wing skins. Under the initial system development and demonstration contract is supplying parts for 22 ship sets through October 2006. Follow-on potential during the low-rate initial production phase includes an additional 674 ship sets through 2015. ATK Composites is responsible for tooling design and manufacture of the upper wing skins for all three variants of the new fighter aircraft, with products based on the fibre placement manufacturing process. ATK Composites previously supported Lockheed Martin on two JSF demonstration programs - for the Concept Demonstration Aircraft, ATK supplied two ship sets of fibre-placed inlet ducts and representative sections of the upper wing skins to simulate the STOVL and CV variants.	
Lockheed Martin	Alliant Techsystems (ATK)	Clearfield, Utah, USA	Components -see comment	$240 million plus	The company has announced a contract to supply additional composite components for low rate initial production (LRIP) lots 4 - 8 of the F-35 Joint Strike Fighter. Under the terms of the contract with Lockheed Martin, ATK will use advanced fibre-placement technology to provide upper wing-box skins, lower wing-box skins, and engine nacelle skins for the conventional take-off and landing (CTOL), and short take-off/vertical landing (STOVL) variants of the F-35. Production will begin in 2010 and continue through 2015.	April 2010
Lockheed Martin/Northrop Grumman/JSF program office	Alenia	Cameri, Italy	Final assembly and check-out facility		Cameri has been chosen by the government to set up a final assembly line producing two F-35s a month and managed by Alenia Aeronautica. The site will employ 500 people and production is due to run from 2011 to 2022.	December 2008
Lockheed	Ball Aerospace	Boulder,	Communications,		The system comprises one S-band, two UHF, two	The integrated

Martin/Northrop Grumman/JSF program office		Colorado, USA	Navigation and Integration (CNI) integrated body antenna suite		radar altimeter, three L-band antennas per aircraft	body suite qualification was completed in June 2005.
Lockheed Martin/Northrop Grumman/JSF program office	General Electric/Rolls Royce	Evendale, Ohio USA and Bristol UK	F136 engines (SDD phase)	$2.4 billion	The F136 Development and Demonstration (SDD) program was formally launched in August 2005 with a $2.4 billion contract award. The SDD phase is scheduled to run through 2013; the first production F136 engines are scheduled to be delivered in late 2012 for the F-35 Lightning II aircraft. This occurs during the fourth lot of F-35 aircraft production, which is very early in the overall aircraft production program.GE - Aviation, with responsibility for 60 per cent of the F136 program, is developing the core compressor and coupled high-pressure/low-pressure turbine system components, controls and accessories, and the augmentor. Rolls-Royce, with 40 per cent of the F136 program, is responsible for the front fan, combustor, stages 2 and 3 of the low-pressure turbine, and gearboxes. International participant countries are also contributing to the F136 through involvement in engine development and component manufacturing. However, following a US Congress decision in March 2011 to cancel the F-136 engine program General Electric and Rolls-Royce have said they will spend their own money to keep the F136 engine alive.	
Lockheed Martin/Northrop Grumman/JSF program office	Pratt & Whitney	East Hartford, Connecticut, USA	F135 engine production	$69.3 million	The F135 engine low rate initial production contract will support two conventional take-off and landing (CTOL) F-35 production aircraft. Engine deliveries are scheduled to begin in June 2009. The F135 propulsion system team consists of Pratt & Whitney, the prime contractor with responsibility for the main engine and system integration; Rolls-Royce, providing lift components for the STOVL F-35B; and Hamilton Sundstrand, provider of the F135's control system, external accessories and gearbox.	September 2007
Lockheed Martin/Northrop Grumman/JSF	Pratt & Whitney	East Hartford, Connecticut< USA	F135 engine production	$78 million	The low rate initial production (LRIP) contract covers F135 long lead material for seven conventional take-off and landing (CTOL) and seven short-take off/vertical-landing (STOVL) F-	October 2008

program office					35 aircraft. This award is one in a series of milestones for the F135 engine program, including exceeding 10,000 ground test hours as part of the system development and demonstration program; logging 59 successful flight tests and more than 75 flight test hours of the F135-powered CTOL F-35 aircraft; and completing 14 flights of the F-35B powered by Pratt & Whitney's F135 STOVL propulsion system.	
US Department of Defense	Pratt & Whitney	East Hartford, Connecticut, USA	F135 engine production	$571 million	This low rate initial production (LRIP) contract covers production, sustainment, spare parts and engineering support for the third lot of F135 engines, including 10 conventional take-off and landing (CTOL) and 11 short-take off/vertical-landing (STOVL) engines for F-35 aircraft. Additionally, Pratt & Whitney has been awarded a $113 million contract for long lead material procurement to produce 32 F135 engines for the fourth lot of F135 engines.	July 2009
Lockheed Martin/Northrop Grumman/JSF program office	General Electric (formerly Smiths Aerospace)	See below	See below		Overall General Electric/Smiths business on the J-35 valued at up to $7 billion (see below).	
Lockheed Martin/Northrop Grumman/JSF program office	General Electric (formerly Smiths Aerospace)	Cheltenham, US	Horizontal tail centering actuator	Contract award of potential value of $25 million over life of program.	Smiths Interconnect has also been selected to provide broadband cable assemblies with a total contract value of $500 million over the life of the program.	
Lockheed Martin/Northrop Grumman/JSF program office	General Electric (formerly Smiths Aerospace)	Cheltenham,UK	Standby flight display system, electrical power management system, remote input / output data concentrator units	See above		
Lockheed Martin/Northrop Grumman/JSF program office	General Electric (formerly Smiths Aerospace)	Michigan, Maryland and Florida, USA	Weapons control and data management	See above		

Lockheed Martin/Northrop Grumman/JSF program office	General Electric (formerly Smiths Aerospace)	Southampton UK	Engine and debris monitoring system and airframe strain and stress models	See above		
Lockheed Martin/Northrop Grumman/JSF program office	General Electric (formerly Smiths Aerospace)	New Hampshire and Massachusetts USA	LiftFan(tm) hose and tube system	See above		
Lockheed Martin/Northrop Grumman/JSF program office	General Electric (formerly Smiths Aerospace)	Southampton UK	Integrated canopy frame assembly	See above		
Lockheed Martin/Northrop Grumman/JSF program office	GKN Aerospace	Garden Grove, California, USA	Cockpit canopy		GKN has installed new equipment at its Garden grove plant: carrying out the advanced coating, laminating, and 5-axis NC machining processes. In January 2002, GKN Aerospace was contracted by Lockheed Martin to develop the integrated transparency systems (ITS) for the System Development and Demonstration (SDD) phase of the JSF program. The JSF ITS contract covers the development of the aircraft canopy and related systems and for both the U.S. Air Force CTOL and Navy CV variants as well as the short-take off/vertical-landing (STOVL) version for the US Marines and UK Royal Air Force/Royal Navy. This includes the design, qualification and production of the test units for the aircraft.	January 2002
Lockheed Martin/Northrop Grumman/JSF program office	GKN Aerospace	Metal processing is being undertaken in St Louis, Missouri, USA and Filton (UK) while the composites work package is handled in the Isle of Wight (UK).	Composite and metallic work structures	$200 million	The contract extends GKN Aerospace's involvement on the F-35, which currently includes the supply of a number of complex titanium structures for the airframe and engine; providing the advanced all-composite engine front fan case and embedded electro-thermal ice protection system for the F135 engine; and designing and supplying the aircraft's canopy transparency. These new packages of work bring the company's composites expertise to the airframe for the first time and involve the manufacture of high value composite parts as	July 2010

					well as further precision machined exotic metal structures. The agreements cover all three F-35 variants including the F-35A Conventional Take Off and Landing (CTOL), the F-35B Short Take Off and Vertical Landing (STOVL) and the F-35C Carrier Variant (CV) aircraft.	
Lockheed Martin/Northrop Grumman/JSF program office	L-3 Display systems	Alpharetta, Georgia, USA	Panoramic cockpit display (PCD) sub-system	The potential contract value over the life of the program is over $200 million.	The contract is for the System Development and Demonstration (SDD) phase. The display system includes the 20in x 8in active matrix liquid crystal displays and display management computer	November 2005
Lockheed Martin/Northrop Grumman/JSF program office	Lockheed Martin	Fort Worth, Texas, USA	Forward fuselage			
Lockheed Martin/Northrop Grumman/JSF program office	Lockheed Martin	Marietta, Georgia, USA	Wing		In July 2010 work started at the F-35 Lightning II wing production plant, the Marietta site's B-1 aircraft centre. The F-35 work area occupies more than 320,000 square feet, and the assembly activity is projected to employ more than 600 workers by 2016 as the program ramps up to full-rate production of one aircraft per workday.	
Lockheed Martin/Northrop Grumman/JSF program office	Northrop Grumman	Palmdale, California, USA	Centre fuselage		Production of the first major F-35 subassembly – the centre fuselage – began on May 18, 2004.	
Lockheed Martin/Northrop Grumman/JSF program office	BAE Systems	See below	See below		BAE Systems is responsible for the design, development and production of the aft fuselage, empennage and CV wing tips for each aircraft. The company is providing critical components for the vehicle and weapon systems, in particular the fuel system, crew escape, life support system and prognostics health management integration. BAE Systems has significant work share in autonomic logistics, primarily on the support system side, and is involved in the Integrated Test Force, including	

					the systems flight test and mission systems. The company is also responsible for the F-35's Electronic Warfare (EW) systems suite and is providing advanced affordable low observable apertures and advanced countermeasure systems. Additionally, BAE Systems is supplying the vehicle management computer, the communication, navigation and identification (CNI) modules, the active stick and throttle and the EOTS Laser subsystem.	
Lockheed Martin/Northrop Grumman/JSF program office	BAE Systems Avionics	Rochester, UK	Side stick and throttle controls			April 2002
Lockheed Martin/Northrop Grumman/JSF program office	BAe Systems	Samlesbury UK	Aft-fuselage, horizontal and vertical tails		 Picture above: The titanium machining factory Picture: BAE Systems The aft fuselage is built by BAE Systems I and delivered to Lockheed Martin at the Fort Worth plant. BAE Systems has signed letters of intent (LoI) worth around $1 billion relating to low-rate initial production of the F-35 Joint Strike Fighter (JSF) with a series of second-tier suppliers in Denmark, Canada and Australia. (see below) BAE Systems opened a new titanium machining facility at its Samlesbury site in Lancashire in November 2010. The robotic facility will be used to manufacture detail and assembly components of the Aft Fuselage, Vertical Tail and Horizontal Tail for the F-35 Lightning II combat aircraft. The	

					9000 metre square machining facility comprises two computerised Flexible Manufacturing Systems (FMS) which not only manage the manufacturing requirements and machine tool utilisation, but also interface with order book requirements, thus ensuring components are produced and delivered on a 'just-in-time' basis. Each FMS contains eight large hard metal milling machines, two long spar longeron machines and is supported by a number of secondary operations. The facility is equipped to allow two titanium components to be produced at the same time.	
Lockheed Martin/Northrop Grumman/JSF program office	BAE Systems Information & Electronic Warfare Systems (IEWS)	Nashua, New Hampshire, USA			Electronic warfare suite (see below)	
Lockheed Martin/Northrop Grumman/JSF program office	BAe Systems Platform Solutions	Los Angeles, California, USA	Alternative design helmet-mounted display		The system is based on the binocular helmet developed for the Eurofighter Typhoon	
Lockheed Martin, BAE Systems and Northrop Grumman Corporation	Terma	Grenaa, Denmark	See comment	The present estimated value of the MOU is more than 7 billion DKK	Lockheed Martin, BAE Systems and Northrop Grumman Corporation along with Moog Incorporated, General Dynamics Armament and Technical Products, Parker Hannifin Corporation and Marvin Engineering Company have signed a Memorandum of Understanding (MoU) with Terma A/S for the Danish company to become a major strategic partner in the program. The agreement covers the following systems (see also below): composite conventional edges for the aircraft horizontal tails; advanced lightweight composite components for the centre fuselage; STOVL horizontal tails; missionized gun pods for STOVL and CV variants; data acquisition pods for flight test instrumentation; radar electronics flight control components. This work involves a major expansion of the Grenaa facilities, primarily in the area of advanced lightweight composites	August 2009

					technology which will give Terma the opportunity to compete for additional program work.	
Lockheed Martin/Northrop Grumman/JSF program office	Terma	Lystrup, Denmark	Horizontal stabliser conventional edges	Contract worth around $50 million according to Terma.	Structure made from carbon-fibre parts	June 2006
Lockheed Martin/Northrop Grumman/JSF program office	Terma	Grenaa, Denmark	Airframe composite panels			
Lockheed Martin/Northrop Grumman/JSF program office	Terma	Grenaa, Denmark	Gun pod			
Lockheed Martin/Northrop Grumman/JSF program office	Terma	Grenaa, Denmark	Weapon pylons			
Lockheed Martin/Northrop Grumman/JSF program office	Heroux-Devtek	Montreal, Canada	Structural components	The new business is worth $10.5 million with a potential extension to a maximum of $99 million through 2026	Heroux-Devtek Inc announced it will build 43 different structural components while the landing gear unit will engineer and manufacture door lock assemblies, the company announced. The company is now one of Lockheed Martin's major suppliers of structural components. In March 2006 Lockheed Martin awarded Héroux-Devtek's Progressive Inc. business unit a multi-year contract for the Low Rate Initial Production phase of the JSF project. In particular, Progressive Inc. will build the inner wing bulkhead for the three versions of the JSF F-35: the STOVL (short take-off and vertical landing), the CTOL (conventional take-off and landing) and the CV (carrier version). Revenues for the first five years of the contract could be up to $135 million. The second phase of the	February 2004

					agreement, to last until 2028, could provide Progressive with a share of approximately 50% of the structural component business subcontracted out by Lockheed Martin.	
Lockheed Martin/Northrop Grumman/JSF program office	ITT Corp	Amityville, New York, USA	Pneumatic weapon delivery systems	$24.8 million	Contract covers the design and development of a suite of pneumatic weapon-delivery systems, including manufacturing for the SDD aircraft.	January 2002
Lockheed Martin/Northrop Grumman/JSF program office	Vision Systems International	San Jose, California, USA	Helmet-mounted display (HMD)	$84.56 million	Lockheed Martin Fort Worth awarded the contract for the development of VSI's HMD covering the JSF System Development and Demonstration (SDD) phase, and planning for low rate initial production (LRIP) and subsequent full-rate production phases. VSI is developing and delivering HMD units to support the JSF development and integration laboratories, the JSF simulators, and the JSF flight-test platforms. Additionally, the contract includes options for technology refreshment (TR) and operational test and evaluation (OT&E) spares. Production contracts for more than 3000 HMD systems, in support of JSF production, are expected to follow successful completion of the development. VSI is a joint venture between EFW Inc. a subsidiary of Elbit Systems and Rockwell Collins.	August 2003
Lockheed Martin	Vision Systems International	San Jose, California, USA	Helmet-mounted display (HMD)	$54.1 million	The Lockheed Martin Corporation awarded VSI a contract for the delivery of 52 F-35 Gen II Helmet Mounted Displays and 30 aircraft ship-sets in support of the F-35 Lightning II Helmet Mounted Display System (HMDS) program. Under the low rate initial production (LRIP) contract, VSI will provide HMDS hardware and production tooling for the LRIP 1, 2 and 3 acquisitions. This procurement fills initial U.S. government domestic requirements for the U.S. Air Force F-35A, U.S. Marine Corps F-35B and U.S. Navy F 35C platforms, as well as some foreign military sales production commitments. LRIP deliveries will continue through 2012.	June 2009
Lockheed	Goodrich	Santa Fe Springs,	See comment	Up to $4-5	Goodrich has been selected to providing the	

Martin/North rop Grumman/JSF program office		California, USA Aircraft Wheel & Brake, Troy, Ohio, USA		billion in revenue over the life of the program, including original equipment and aftermarket sales and service	following to the F-35 - landing systems, utility actuation, fuel quantity gauging components and the associated wiring harnesses as part of the F-35's fuel measurement system. Goodrich will supply the Short Take Off Vertical Landing (STOVL) version of the aircraft with the LiftFan driveshaft and coupling and is supplying Rolls-Royce a LiftFan anti-icing system. Goodrich's Actuation Systems team provides the downlock and retract actuators for the landing gear system, and the wiring harnesses are also provided by Goodrich. In addition, the company is providing the weapons bay door drive actuation system (Wolverhampton, UK)	
Lockheed Martin	Goodrich	Burnsville, Minnesota, USA	Air data system	Selection is expected to generate $300 million in revenue over life of the program	Initial work includes the System Development and Demonstration (SDD) and Low Rate Initial Production 1 and 2 phases of the program. SDD is expected to be completed in the first quarter of 2009, with ADS production deliveries also commencing in the first quarter of 2009. The ADS provides critical air data parameters to the vehicle management computers for the aircraft's flight control and pilot display systems. The company's SmartProbe(TM) and SmartPort(R) air data sensing technology allows integration of multi-function sensing ports, pressure sensors and processing capability through the elimination of pneumatic lines.	
Lockheed Martin/North rop Grumman/JSF program office	Goodrich	Charlotte, North Carolina, USA	Angle of attack stall warning systems, electron-mechanical control actuation system, fuel measurement/management, ice detection , exterior lights, aircrew escape system			
Lockheed Martin/North rop Grumman/JSF program office	Harris Corp	Melbourne, Florida, USA	Advanced avionics systems, infrastructure, image processing, digital map software, fibre optics, high-speed communications links and part of the	Over $2 billion	The three-year $55 million advanced avionics design contract was awarded by Northrop Grumman as part of the Lockheed Martin Joint Strike Fighter (JSF) team. Harris expects over $2 billion in advanced avionics systems design, development, and production work on JSF over the life of the program. Under terms of the contract Harris is performing critical path work	December 2001

			communications, navigation and information (CNI) system		on the JSF's avionics infrastructure, including the design of the basic avionics architecture to be used by all suppliers who will be providing electronic subsystems for the JSF. In addition, the contract calls for Harris to design other hardware for the JSF such as custom racks, circuit cards, connectors, power supplies, and avionics backplanes. Harris completed its first hardware deliveries for the JSF program in early 2003. The first hardware delivery included an initial quantity of fiber-optic transceivers and electronic module thermal cores to support development testing on elements of the aircraft's central computing system.	
Lockheed Martin/Northrop Grumman/JSF program office	Honeywell	Phoenix, Arizona, USA	Radar altimeter, inertial navigation / global positioning system (INS/GPS) and air data transducers	The company expects revenues generated from Honeywell products, systems and services on the JSF to exceed $5 billion over the life of the new fighter jet program.	Honeywell has a strategic supplier agreement with Lockheed Martin Aeronautics. Honeywell's Defense & Space Electronic Systems (DSES) will provide four systems for the F-35; inertial navigation system (INS), the tactical navigation units (TNU), the low observable air data system (LOADS), and the low probability of intercept (LPI) radar altimeter. Honeywell and its partner, Avionics Specialties, Inc. (ASI) Charlottesville, Virginia, USA) were selected to provide the Low Observable Air Data System that consists of integrating Honeywell's micro-machined MEMS-based pressure sensors with ASI's low observable multi-function probes and flush-mounted static pressure ports. Honeywell's presence on the JSF also includes the landing system's wheels and brakes, onboard oxygen-generating system, engine components and the power and thermal management system driven by an integrated auxiliary power unit (APU). Other Honeywell products being finalised for the program include radar altimeter, inertial navigation/global positioning system and air data transducers. Beyond new components and systems, the company also will provide repair and overhaul maintenance services.	
Lockheed Martin/Northrop Grumman/JSF program office	Honeywell, Dunlop and Crane Hydro-Aire		Wheels, brakes and tyres			November 2001

Lockheed Martin/Northrop Grumman/JSF program office	Raytheon' Space and Airborne Systems (SAS)	El Segundo California, USA	24-channel GPS with digital anti-jam receiver (DAR). Integrated core processing system	DAR contract up to $125 million	Raytheon's Space and Airborne Systems business was awarded an initial $25.8 million subcontract for System Development and Demonstration (SDD) by Northrop Grumman Integrated Systems, which is responsible for mission systems integration of the GPS sensor on the F-35 JSF team. The potential value of the work is $125 million to provide DAR systems through SDD and production. The F-35 Integrated Core Processing System development program is scheduled for completion in 2012. The ICP is the sensor processing system for the F-35 and is implemented in an open-system architecture designed to maximize the use of standards-based, commercially available products.	
Lockheed Martin/Northrop Grumman/JSF program office	Kongsberg Defence and Aerospace	Kongsberg, Norway	Composite products	Initial scope of MNOK 1300 and MNOK 650. . Full-scale production will mean the scope can potentially increase to a total of NOK 6-8 billion.	The framework agreements with Lockheed Martin and Northrop Grumman were conditional on Norway procuring the aircraft. The agreements will extend for more than eight years and require the construction of a new composite factory. In June 2005 Kongsberg Defence and Aerospace signed a nearly $40 million, long-term agreement with Northrop Grumman Corporation to produce composite parts and subassemblies for the F-35 centre fuselage.	January 2007
Lockheed Martin/Northrop Grumman/JSF program office	Kongsberg Defence and Aerospace	Kongsberg, Norway	Components	MNOK 270	Kongsberg has won a contract with Lockheed Martin for the deliveries of components for the F-35 fighter aircraft. With a scope of MNOK 270, the contract applies to the delivery of composite & titanium components for the aircrafts rudder.	August 2010
Lockheed Martin/Northrop Grumman/JSF program office	Kongsberg Defence and Aerospace	Kongsberg, Norway	Rudders and vertical leading edges	MNOK 120	Kongsberg has received an order for deliveries of rudders and vertical leading edges to the F-35 Joint Strike Fighter. The order is for deliveries to 28 F-35s and is part of the framework agreement signed in July 2008.	January 2011
Lockheed Martin/Northrop Grumman/JSF	Lockheed Martin Missile & Fire Control and Northrop	Dallas, Texas, USA And Woodland Hills,	Electro-Optical Targeting System		The two companies are jointly responsible for the electro-optical system. EOTS provides long-range detection and precision targeting while DAS is the thermal imaging system. DAS consists	

program office	Grumman Electronic Sensors and Systems	California, USA	(Lockheed Martin) Distributed Aperture System (Northrop Grumman)		of multiple infrared cameras (supplied by Indigo Systems of Goleta, California) providing 360° coverage using advanced signal conditioning algorithms. As well as situational awareness, DAS provides navigation, missile warning and Infrared Search and Track (IRST). EOTS is embedded under the aircraft's nose, and DAS sensors	
Lockheed Martin/Northrop Grumman/JSF program office	General Dynamics Armament and Technical Products	Charlotte, North Carolina, USA	Gun system		The air force variant has an internally mounted gun. The carrier and marine variants have provision for an external gun pod.	September 2002
Lockheed Martin/Northrop Grumman/JSF program office	Northrop Grumman Electronic Systems	Woodland Hills, California ,USA	Radar		The radar is an electronically scanned array (AESA) AN/APG-81 multi-function radar. The AN/APG-81AESA combines an integrated radio frequency subsystem with a multifunction array.	
Lockheed Martin/Northrop Grumman/JSF program office	General Electric (formerly Smiths Aerospace)	Cheltenham, UK	Electronic control systems, electrical power system (with Hamilton Sundstrand), integrated canopy frame			
Lockheed Martin/Northrop Grumman/JSF program office	Hamilton Sundstrand	Windsor Locks, Connecticut, USA	Engine gearboxes			
Lockheed Martin/Northrop Grumman/JSF program office	Hamilton Sundstrand	Windsor Locks, Connecticut, USA	Electrical power system (with General Electric)			
Lockheed Martin/Northrop Grumman/JSF program	Vought	Milledgeville, Georgia, USA	Lower wing skins	Initial contract worth $7 million	The initial $7 million contract is for the system development and demonstration phase of the program, covering production of 22 ship-sets through July 2006. Vought was also awarded a technical support contract to assist Lockheed	August 2002

office					Martin in the development of the integrated full-scale airframe test program for the JSF program. According to the company: “Vought is the first company in the aerospace industry to use fibre placement to create a full-scale part with bismaleimide (BMI)/graphite slit tape and hand lay-up of woven pieces. The wing skins are fabricated using a newly installed Cincinnati Composites Viper 3000 machine. The Viper 3000 is an advanced composite fibre placement system that manufactures highly contoured aerospace components. The system places layers of 1/8-in. wide composite fibre tape onto a mold machined to the shape of the finished component. Each layer is put down in a different direction to increase overall stiffness and durability. Each wing skin, prior to trimming, weighs about 290 pounds. They are shipped to Lockheed Martin’s facility in Fort Worth for final assembly.”	
Lockheed Martin/Northrop Grumman/JSF program office	Parker Aerospace	See below	Flight control, hydraulic, fluid management, and control system components		The company has been selected as strategic supplier to Lockheed Martin Aeronautics Co.'s F/A-22 Raptor, F-35 Joint Strike Fighter, F-16 Fighting Falcon, and C-130J Hercules programs.	February 2005
Lockheed Martin/Northrop Grumman/JSF program office	Parker Aerospace	Parker Aerospace divisions supporting the program include the Control Systems Division-Military (Irvine, California, USA), Air & Fuel Division (Irvine, California, and Tolleson, Arizona USA), Nichols Airborne Division (Ayer, Massachusetts, and Elyria, Ohio USA), United Aircraft Products Division (Forest, Ohio USA),	Fuel system, hydraulics for lift fan, engine controls and accessories	Estimated revenues of approximately $5 billion over the life of the program	Parker is designing and producing including the entire fuel system (consisting of fuel pumps, valves, aerial refuelling equipment, and an on-board inert gas generating system or OBIGGS) and all primary flight control actuators (teamed with Moog, Inc. Aircraft Group). The flight controls will use electro-hydrostatic actuation technology for the first time in a production aircraft. On the Pratt & Whitney F-135 engine Parker will provide engine controls and accessories, including bleed air control valves, oil-level indication, the lubrication and scavenge oil pump, and several other fuel-system-related engine products. On the short take off vertical landing (STVOL) version of the aircraft Parker will supply the hydraulic control unit for the lift fan and clutch housing on this version of the engine. Parker's current contract value on the F-35 is approximately $1 million per aircraft. Parker's Customer Support Military Division	

		Electronic Systems Division (Smithtown, New York USA), and Stratoflex Division (Fort Worth, Texas USA).			(Irvine, California, USA) will provide spares, repair, overhaul, and other aftermarket services for the life of the JSF program.	
Lockheed Martin/Northrop Grumman/JSF program office	Moog	East Aurora, New York, USA	Primary flight control		The company is supplying primary flight controls on the System Development and Demonstration phase of the F-35. Joint Strike Fighter program. Moog is partnered on this program with Parker Hannifin to jointly provide the Electro-Hydrostatic Actuation System that will control the aircraft's major flight surfaces including the flaperons, rudders, and horizontal tails. The Navy's version of the aircraft will also include controls for the ailerons. Of the total contract value, Moog's portion of revenue will be approximately $57 million. Other work packages include the electro-hydrostatic actuation system (EHAS), leading edge flap drive system and wing-fold system	October 2002
Rolls-Royce	Moog	Wolverhampton, UK	Main engine lift system		Moog completed acquisition of GE Aviation Systems' flight control actuation business for $90 million in September 2009.	
Lockheed Martin	Stork Fokker	Papendrecht, the Netherlands	Flaperons		The F-35's flaperons are 3 metre long flaps on the wing trailing edges which are vital for the controllability of the aircraft. The units design are based on a combination of composite and titanium with a better resistance to fatigue and corrosion. Stork Fokker has already manufactured more than 2000 sets of flaperons for the Lockheed Martin F-16 aircraft type for many years. This initial order will provide employment for around 100 people, a figure that will be doubled if the total production order is received. Production will be in the Netherlands, initially in the existing Stork Fokker factory in Hoogeveen, and will later be transferred to a new F-35 factory. Other contributions by Stork Aerospace to the JSF project include the design and production of the doors and hatches, the electrical wiring	October 2009

					harnesses, the wiring and structural components for the Pratt & Whitney engines and the arresting gear. Stork has up to now involved forty suppliers in the Netherlands in these JSF orders, and this number is expected to increase further when the serial production phase starts (see also below).	
Lockheed Martin	Stork/Fokker Elmo	Wonsdrecht, The Netherlands	Wiring harnesses		Under the terms of the agreement, Fokker Elmo will provide production capabilities, support and sustaining engineering during the aircraft's Low Rate Initial Production Phase. Both companies will also investigate ways to jointly support the Full Rate Production phase of the F-35 program. This agreement represents the largest Dutch industrial cooperation agreement to date on the program. Lockheed Martin and Fokker Elmo are working on a Total Integrated Wiring System (TIWS) solution which includes wiring management, configuration management, procurement and logistics, product support, set-up and management of all wiring production, and manufacturing of complex wiring harnesses both in the Netherlands and in the global supply chain, including Fokker Elmo's facility in Turkey.	April 2008
Lockheed Martin/Northrop Grumman/JSF program office	Turkish Aerospace Industries	Ankara, Turkey	Centre fuselage		Under the Letter of Intent (LOI) TAI becomes the second source for the F-35 Lightning II center fuselage. The number of center fuselages to be produced by TAI will be determined depending on the number of F-35s Turkey will procure and the number of F-35s to be produced worldwide. In November 2008 TAI opened a new 74,000sq ft facility to make at least 400 composite subassemblies in the low rate initial production (LRIP) phases of the program. (see also, tier two, three and other supplier data)	February 2007
Lockheed Martin/Northrop Grumman/JSF program office	Martin Baker	Higher Denham, UK	Ejection seat		US16E ejection seat, The System Development & Demonstration (SDD) ejection is a further development of the Mk.16 range. The US16E will be common to all F-35 aircraft variants.	
Lockheed Martin	Terma	Lystrup, Norway	Test pods		Under the memorandum of understanding (MOU) Terma and Lockheed Martin agreed to team for the design and manufacture of test pods for the System Development and	July 2004

					Demonstration (SDD) phase of the JSF program. The pods will be used for data acquisition, recording and telemetry during flight testing of all F-35 variants. In addition to the test pods, Terma will manufacture equipment and nose-boom installations for the test program.	
Lockheed Martin	Alcoa	Cleveland, Ohio, USA	Aluminum die forgings		Alcoa Power and Propulsion business has been awarded a 10-year contract to supply 7085 alloy aluminium die forgings for the JSF program. Contract work will be performed by Alcoa Forged and Cast Products Cleveland operations and involves the design and manufacture of all the large aluminium structural die forgings for more than 1,200 aircraft. The forgings include 15 large bulkheads — the primary structural support for the wing and engine that can weigh from 1,800 to 6,000 pounds and range from 10 to 23 feet in length — and six wing box parts which serve as an important component of the skeletal structure to the wing. Alcoa's partnership with Lockheed Martin began in 2004. In addition to the aluminium forgings described above, other Alcoa aerospace units will provide critical F-35 components and solutions to the program. Among those are highly-engineered joining devices from Alcoa Fastening Systems, specialty alloy plate from Alcoa North American Mill Products, and high-pressure turbine blades for F-35 JSF engines and structural aluminum castings from Alcoa Power and Propulsion. As part of the JSF contract, Alcoa plans to invest $24 million in Cleveland Works primarily for new machinery, equipment and infrastructure improvements. Alcoa Forged and Cast Products is being supported by the State of Ohio with a $400,000 Rapid Outreach Grant and up to $450,000 for employee training.	November 2007
Lockheed Martin	Eaton	The JSF hydraulic system involves Eaton facilities in Jackson, Mississippi; Jackson, Michigan; Los Angeles and	Fluid power systems		The company has a major roles role as a tier one fluid power systems provider. Eaton's Aerospace business unit, based in Irvine, California, was selected by Lockheed Martin to provide the primary fluid power system. The company will has responsibility for the total design, development and integration of the 4000 pounds per square inch (psi) utility hydraulic	November 2001

		Bedhampton, UK.			power system, utility actuation and control valve sub-system, and weapon bay door hydraulic motor. Components include Vickers® brand 4000 psi hydraulic pumps, motors and motor pumps, reservoirs, manifolds and accumulators, Sterer® brand control valves, and Aeroquip® brand hoses, fittings and quick disconnect couplings. In addition, plants in Glenolden, Pennsylvania, and Bethel, Connecticut, are involved in supplying the LiftFan® lubricating system.	
Lockheed Martin	Sirio Panel	Lavenella, Italy	Cockpit equipment and lighting systems			November 2003
Lockheed Martin	Curtiss-Wright	Gastonia and Shelby, North Carolina, USA	Ordnance hoist system (OHS) and ordnance quick latch system (OQLS)		The equipment to be provided is a new requirement designated as Alternate Mission Equipment (AME) for ordnance loading, carrying, and unloading on all three aircraft variants (CTOL, STOVL, and CV). SDD hardware deliveries are anticipated to occur from 2006 through 2010.	November 2005

Tier two, tier three and other suppliers

Purchaser	Supplier	Plant/company location	Work package	Value	Comment	Date awarded
Goodrich	US Air Force's Ogden Air Logistics Center (OO-ALC)	Hill Air Force Base, Utah, USA	Landing gear coatings		Under the agreement, the OO-ALC will apply high velocity oxygenated fuel (HVOF) thermal spray coating on Goodrich landing gear components produced for the F-35. The initial agreement runs through May 2009, and covers requirements for five landing gear ship-sets of the carrier variant F-35.	January 2009
Goodrich	Alp Aviation	Ankara, Turkey	Landing gear components and assemblies		The agreement covers deliveries through December 31, 2015. Under the agreement, Alp Aviation will supply machined components ranging from aluminium parts to high strength steel components and assemblies. These components will be delivered to Goodrich Landing Gear's final assembly facility in Cleveland, Ohio.	July 2009
Northrop Grumman	Harris	Melbourne, Florida, USA	Intra-flight data links	Harris Corp's contract is	Intra-flight Data links allow pilots to securely talk to each other. Northrop Grumman Space	

Space Technology				potentially worth as much as $500 million during the next two decades, bringing the total value of the aircraft program for Harris to $2.5 billion.	Technology awarded Harris an initial six-year, $30.7 million contract to design and develop the hardware components of the data link.	
Northrop Grumman	ATK Alliant Techsystems	Rocket Center, West Virginia, USA	Composite inlet ducts	Between $10 million and $40 million	Northrop Grumman is the design authority and primary producer of the inlet ducts and has contracted ATK as a second source supplier for inlet duct production. ATK will begin manufacturing inlet ducts during the low rate initial production (LRIP) phase four of the program with deliveries occurring through mid-2011. The follow-on, full-scale production phase of the contract is potentially worth an additional $40 million.	April 2010
L-3 Display Systems	Logic Sistemi Avionici	Milan, Italy	IPDT components		Integrated Product Development Team (I-IPDT, led by L-3 Display Systems, who is under a Lockheed Martin Aeronautics contract) that will design, qualify and manufacture the PCD.	
L-3 Display Systems	Aydin Yazilim ve Elektronik Sanayii	Ankara, Turkey	IPDT components			
L-3 Display Systems	Philips Mobile Electronics of	Heerlen, The Netherlands	IPDT components			
L-3 Display Systems	Barco	Kortrijk, Belgium	IPDT components	The Barco PCD contract content holds a potential value of over $15 million over the life of the JSF program.		February 2006

Pratt & Whitney	Alp Aviation	Ankara, Turkey	Fan rear hub		The contract follows on from the signing of the June 2005 industrial partnership between Pratt & Whitney and Alp Aviation.	September 2005
Pratt & Whitney	Volvo Aero Norway	Kongsberg, Norway	Low-pressure turbine (LPT) shaft and the intermediate case for Pratt & Whitney's F135	The order value of the signed agreements on the F-135 and F-136 is around $1.7 million and the entire program could yield up to $177 million to Volvo Aero.		
Pratt & Whitney	GKN Aerospace	Luton, UK	Ice protection system	$6 million	The contract is for electro-thermal heater mats for the F135 engine ice protection system (EIPS). The contract should lead to full scale production. The new electro-thermal EIPS will remove the need to bleed hot air from the engine. It will represent the first production application of a Resin Transfer Moulded (RTM) composite structure with an electro-thermal heating system, according to the company. GKN Aerospace is responsible for the integration of the mats into the forward fan case for the F135.	March 2007
Pratt & Whitney	Ultra Electronics	Weymouth, Dorset, UK	F135 EIPS electronic controller and interconnecting harnesses and connectors		Ultra is also involved with the supply of pneumatic distribution components for system integration. The High Pressure Pure Air Generator (HiPPAG) airborne compressor from provides a continuous source of high pressure pure air to cool the infrared seekers of an aircraft's defensive missiles, "keeping them ready for action. HiPPAG also provides a controllable energy source for pneumatic ejection of aircraft munitions whilst meeting the emerging requirement for launching increased quantities of smaller, smart munitions," said the company. HiPPAG is being developed for the F-35 JSF.	
Pratt & Whitney	Production Parts Pty Ltd.	Melbourne, Australia	High turbine supports/bearing	Value in excess of $60	At the time Australia's largest agreement for the manufacture of military aircraft engine parts	February 2006

			housing supports for the F135	million.		
Pratt & Whitney	Stork	The Netherlands	Titanium component for the F135	The value of the agreement is worth $1.25 million in the System Development Demonstration phase, with a potential (but not yet contracted) turnover value of some $200 million through the life of the program	The agreement involves new high performance machining technology for titanium components.	
Pratt & Whitney	Rolls-Royce	Indianapolis, Indiana, USA	Lift fan, three bearing swivel modules and roll posts for the F135		In May 2007 Pratt & Whitney and Rolls-Royce successfully completed the first phase and initiated phase two of the F135 short-take off/vertical-landing engine at the Rolls-Royce facility in Indianapolis, Indiana (see below).	
Pratt & Whitney	Rolls-Royce	Indianapolis, Indiana, USA	Lift-systems	$131 million	The contract covers the supply of lift systems for the first six Short Take-Off and Vertical Landing (STOVL) variant F-35B. The Rolls-Royce LiftSystem(r) comprises a lift fan, roll posts and three bearing swivel module. Rolls-Royce will provide these through the propulsion system prime contractor Pratt & Whitney.The scope of the contract also includes spare hardware, production investment and sustainment planning. Orders for the LiftSystem are expected to total over 600, with leading customers including the US Marine Corps, The UK Armed Forces and the Italian Navy. The F-35B variant is expected to remain in service well after 2050.	December 2008
Pratt & Whitney	Rolls-Royce	Indianapolis, Indiana, USA	Lift-systems	$171 million	The contract is for the supply of Rolls-Royce LiftSystem(r)s for a further nine Short Take-Off and Vertical Landing (STOVL) variant F-35B Lightning II aircraft as part of the third lot of Low Rate Initial Production (LRIP). This order is the second production contract for Rolls-Royce as	November 2009

					part of its involvement in the JSF program (see above).	
Pratt & Whitney	Magellan	Toronto, Canada	Fan sync rings	The agreement has a potential value of more than $20 million over the life of the program. The award is in addition to previous contracts between Pratt & Whitney and Magellan for engine hardware that brings the total value of F135 work placed with Magellan to more than US$63 million.		
Pratt & Whitney	KaleKalip	Istanbul, Turkey	F135 high compressor shrouds sets			September 2005
Pratt & Whitey	Cobham	San Diego, California, USA and Suffolk, Virginia, USA	Composite components	$45 million (including F-22 work)	Cobham has received a five-year, US $45 million long term agreement from Pratt & Whitney to manufacture advanced composite products for multiple military aircraft engine applications. Cobham will produce advanced, medium and high temperature composite structures for both the F135 and F119 engines.	March 2011
General Electric	Volvo Aero Norway	Kongsberg, Norway	Aft and forward compressor cases for the F136			
General Electric	GE Transportation Canada	Bromont, Quebec, Canada	Inlet guide vanes (IGV) and stage one high pressure compressor	$450,000		March 2005

			(HPC) variable stator vanes (VSVs) for the F136			
General Electric/Rolls Royce	BAE Systems, Power Systems Division	Johnson City, New York, USA	Engine full authority digital electronic control (FADEC) systems		BAE Systems was selected by the GE Rolls-Royce Fighter Engine Team (FET) to develop a FADEC for the F136 engine, which uses two FADECs per engine. The FET plans to deliver the first production F136 engine in 2012. Orders for the BAE Systems FADEC could total as many as 5,000 units through 2030.	September 2005
General Electric/Rolls-Royce	Avio	Turin, Italy	Low pressure turbine components		The agreement signed by the three companies provides for Avio's involvement throughout the engine's life span, from the initial development through production and long-term service activities. Avio's responsibilities include the development and production of components for the low-pressure turbine and the compressor. The company has also been contracted for the supply of eleven parts during the System Development and Demonstration Phase (SDD) of the F136 engine program. As part of the agreements, Avio SpA will be involved in design engineering and manufacturing efforts in the F136 SDD Phase. The agreements also address opportunities for a follow-on supplier relationship for the low rate initial production phase as well as revenue sharing participant agreement for the fixed price production and sustainment phases. In 2002 General Electric, Rolls-Royce and the then FiatAvio signed an MOU of cooperation. A separate agreement with Rolls-Royce calls for FiatAvio to also participate in the design, development, and manufacture of the JSF-F136 accessory gearbox.	July 2006
General Electric/Rolls-Royce	Avio	Turin, Italy	Low pressure turbine components	The purchase orders (POs) for parts, tooling and non-recurring engineering are valued approximatel y at $10 million.		July 2006

General Electric/Rolls-Royce	Tusas Engine Industries Inc (TEI)	Eskisehir, Turkey	F136 design engineering services		TEI produces key rotating components for F136 development and test engines at its manufacturing facility in Eskisehir.	July 2006
General Electric/Rolls-Royce	Volvo Aero Norway	Kongsberg, Norway	F136 components	Up to $177 million	Volvo will manufacture both the forward and aft cases of the High Pressure Compressor for the F136. The initial $1.7million contract provides cases for the 40,000lb engine, due to run in 2008 as part of the System Development and Demonstration (SDD) program. The award follows from Volvo's production of aft cases for earlier F136 Phase III test engines.	November 2006
General Electric	Production Parts	Melbourne, Australia	F136 components		The contract covers delivery of parts as part of the System Development and Demonstration Phase (SDD) of the program.	July 2006
Rolls Royce	Dutch Aero	Eindhoven, The Netherlands	F136 blisks		DutchAero is an AVIO and Philips joint venture company based in Eindhoven.The1.1m diameter bladed disk or "blisk" is part of the first stage compressor and is machined from a large solid titanium forging.	July 2005
Rolls-Royce	Goodrich	Santa Fe Springs, California, USA Aircraft Wheel & Brake team in Troy, Ohio,USA Materials and Simulation Technical Center in Brecksville, Ohio, USA	F-136 friction research		The research and development contract covers the application of the company's friction material expertise to the STOVL variant's LiftFan(TM) clutch by Rolls-Royce. In addition to this new research and development contract, Goodrich is providing the landing system for the Air Force's Conventional Take-off and Landing (CTOL) variant of the aircraft. As the landing systems integrator, Goodrich is responsible for the design, manufacturing and testing of unique landing systems for the STOVL and the Carrier Variant (CV) of the aircraft. Goodrich's Actuation Systems team provides the downlock and retract actuators for the landing gear system, and the wiring harnesses are also provided by Goodrich. Goodrich is also supplying: the Rolls-Royce LiftFan anti-icing system for the STOVL version of the aircraft; the LiftFan drive shaft also for the STOVL variant; the Rolls-Royce three-bearing swivel nozzle cross lock and up lock; the fuel quantity gauging components and the associated wiring harnesses; the weapons bay door drive system and the electronic control unit	February 2006

					for the system; utility actuators; and the ice detection system. In addition, Goodrich is developing the air data system.	
Rolls-Royce	Moog	Wolverhampton, UK	Main engine lift system		Moog completed acquisition of GE Aviation Systems' flight control actuation business for $90 million in September 2009.	
BAE Systems	Magellan	Toronto, Canada	Aft-fuselage, horizontal and vertical tails sub-structures			July 2006
BAE Systems	Avcorp (Canada)	Vancouver, Canada	Aft-fuselage, horizontal and vertical tails sub-structures			July 2006
BAE Systems	Terma	Lystrup, Denmark	Aft-fuselage, horizontal and vertical tails sub-structures	Terma's contract was valued in the region of $250 million		July 2006
BAE Systems	Hawker de Havilland	Melbourne, Australia	Aft-fuselage, horizontal and vertical tails sub-structures	Around $600 million.	A Boeing company	June 2006
BAE Systems	RLC Group	Altham, UK	Components	See comment	Contract awarded as part of a £4.2 million Northwest Regional Development Agency (NWDA) Aerospace Supply Chain Excellence Program (ASCE) to link primes with SMEs in the local area. The company will work closely with BAE Systems in a Supplier Association which will be the first supplier association run through the ASCE program.	July 2009
BAE Systems	John Huddleston Engineering	Blackpool, UK	Components	See comment	Contract awarded as part of a £4.2 million Northwest Regional Development Agency (NWDA) Aerospace Supply Chain Excellence Program (ASCE) to link primes with SMEs in the local area.The company will work closely with BAE Systems in a Supplier Association which will be the first supplier association run through the ASCE program.	July 2009
BAE Systems	Hyde Aero Products	Dukenfield, Manchester, UK	Components	See comment	Contract awarded as part of a £4.2 million Northwest Regional Development Agency (NWDA) Aerospace Supply Chain Excellence Program (ASCE) to link primes with SMEs in the local area.The company will work closely with BAE Systems in a Supplier Association which will be the first supplier association run through the	July 2009

					ASCE program.	
BAE Systems	Thyssenkrupp	Bamber Bridge, Preston, UK	Components	See comment	Contract awarded as part of a £4.2 million Northwest Regional Development Agency (NWDA) Aerospace Supply Chain Excellence Program (ASCE) to link primes with SMEs in the local area.The company will work closely with BAE Systems in a Supplier Association which will be the first supplier association run through the ASCE program.	July 2009
BAE Systems North	Kitron ASA	Billingstad, Norway	Assembly of electronic test equipment for the JSF EW program		The contracts are based on the Memorandums of Agreement (MOA) for work-share partnerships with Norway, The Netherlands, Italy and Australia to support BAE Systems during the System Development and Design (SDD) and Low Rate Initial Production (LRIP) phases of the JSF Electronic Warfare (EW) program.	June 2004
BAE Systems North America	Thales Nederland B.V	Hengelo, The Netherlands	Thales will provide machining and casting of sub-modules and components, and the assembly of electronic components		See above	
BAE Systems North America	Galileo Avionica SpA	Milan, Italy	Cables and selected electronic components		The company is wholly owned by Finmeccanica and part of the EWS consortium (see above)	
BAE Systems North America	BAE Systems Australia Limited	Edinburgh Parks, Australia	Wiring boards and assemblies, cable assemblies and selected electronic components		Part of the BAA Systems EWS team	
BAE Systems North America	GKN Aerospace	Several plants in North America organised through Hazelwood Missouri, USA	Fuselage components, canopy		The company has a partnership agreement with BAE Systems on the design and production of fuselage components together with manufacture of composite and metallic engine components and canopy.	
Honeywell	Alcoa Howmet	Cleveland, Ohio,	Castings		The company has been given the contract to develop seven components. These new castings	June 2003

	Castings	USA			will support Honeywell's Thermal Power Management System for the JSF. In addition to the Honeywell order, Howmet has also been awarded sole-source contracts with Pratt and Whitney Aircraft for all six of the turbine airfoils in the JSF.	
	Busak+Shamban	Trelleborg, Sweden	Seal supplier for the landing gear struts		Part of the Trelleborg group	March 2005
Raytheon	Mercury Computer Systems	Chelmsford, Massachusetts, USA	Computers for the Integrated Core Processing System		The F-35 Integrated Core Processing System development program is scheduled for completion in 2012. The ICP is the sensor processing system for the F-35 and is implemented in an open-system architecture designed to maximize the use of standards-based, commercially available products.	May 2004
Northrop Grumman	Stork	Naarden, The Netherlands	In-flight opening doors	Contract for an extension of the development and prototype production order for In-flight Opening Doors awarded; the basic contract dates from 2003 ($15 million engineering, $40 million production, total value $55 million, plus an earlier extension by	Sub-contract partners outlined below. Other contributions by Stork Aerospace to the JSF project relate to the design and prototype production of the electrical wiring for the F-35, wiring and structural components for the Pratt & Whitney engines and of the arresting gear (Conventional Take Off and Landing version). Partners in the program comprise Nedtech Engineering, Silver Aerospace, Global Technics, Airborne Development, Dutch Space, ADSE, TT Engineering	

				16 million in 2005) has been extended by a further $14 million to a total value of more than $ 85 million. The potential total value of the JSF orders for which Stork is responsible is now increased to more than $335 million, spread over the period up to 2013.		
Northrop Grumman	ITT Corporation	Amityville, New York, USA	Landing aid antennas		The contract covers the program's system development and demonstration (SDD) and low rate initial production (LRIP) phases. The contract includes the design and manufacture of various antennas required for both aircraft-carrier and conventional-runway landings. It also includes development of a triplexer network to transfer information from external sensors to the appropriate on-board communications systems	March 2004
Northrop Grumman	Kongsberg	Kongsberg, Norway	Composite components	The current agreement is valued at approx. 460 Million NOK, and it has a potential value of 2.5 Billion NOK	The company's initial deliveries will support lot three low rate initial production aircraft, which will begin the program's transition to full rate production. The parts will be produced at the new 30 000 m2 plant built in Kongsberg. Production is currently in start-up and will last until 2015.	July 2009

				for the duration of the F-35 Program.		
Lockheed Martin	BAE Systems Avionics	Edinburgh, UK	EOTS (see above) FLIR			
Northrop Grumman	Turkish Aerospace Industries	Ankara, Turkey	See comment	$28.4 million	Northrop Grumman Corporation has awarded a second source supplier contract to TAI to produce composite air inlet ducts. The contract is for four years. The first deliveries of ducts from the TAI contract are scheduled for June 2010. Northrop Grumman will use the ducts to support production of centre fuselages during the fourth through eighth phases of low rate initial production.	October 2009
Northrop Grumman	Ducommun AeroStructures, Inc. (DAS)	DAS Gardena and El Mirage, California, USA	Inlet lipskins	Over $3 million	The contract covers low rate initial production (LRIP) lasting through 2015. The initial deliveries are scheduled for the second quarter of 2011.	October 2010
Northrop Grumman	Indigo Systems	Goleta California, USA	DAS camera			
Parker Aerospace Electronic Systems Division	LaBarge	Tulsa, Oklahoma,USA	Printed circuit card assemblies	The company estimates the value of the award at approximatel y $5 million a year for the A350, C-17 and F-35 programs		June 2010
ITT Corporation	CIRCOR Aerospace Products Group/Aerodyn e Controls business unit	Hauppauge, New York, USA	Weapons ejection rack pneumatic power modules			May 2010

Moog	LaBarge	St Louis, Missouri, USA	Printed card assemblies		Follow-on orders are expected. Financial terms were not disclosed. Moog is leading the industry team in the development and integration of the Primary Flight Control and Leading Edge Flap Actuation Systems for the Joint Strike Fighter Program.	December 2010