



# APR21

## NanoXplore

### FACTS SHEET



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## NXmap

STATUS

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**NG** medium

**NG** large

**NG** ultra

**NG** ultra<sup>300</sup>

STATUS

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DOCUMENTATION

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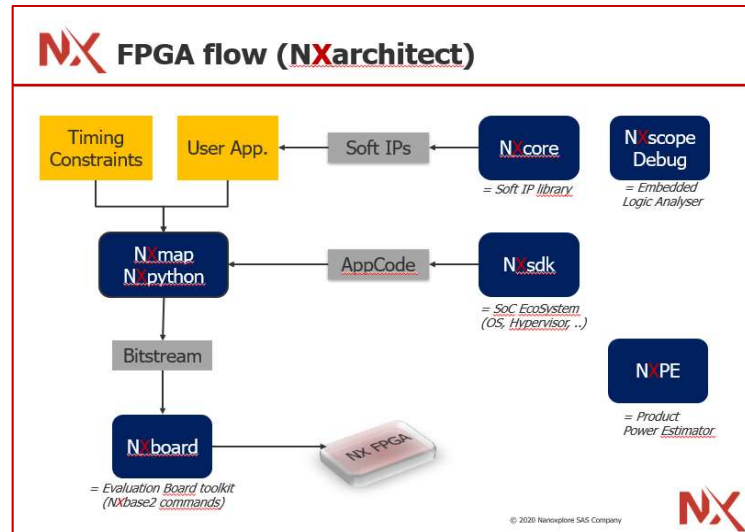
SUCCESS STORIES

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ROOM FOR USERS



- NXmap licence(s) available upon SLA fully validated. Please contact [jlemauff@nanoxplore.com](mailto:jlemauff@nanoxplore.com) to get SLA.
- Please register at <https://download.nanoxplore.com> in order to access all documentations about NX hardware and software.
- Please contact [support@nanoxplore.com](mailto:support@nanoxplore.com) for any enquiries.



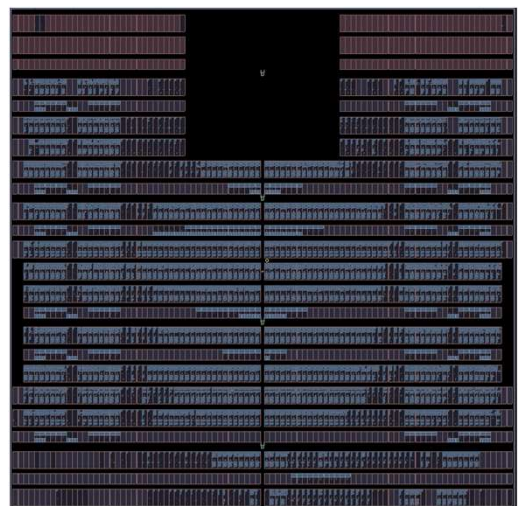
## DOCUMENTATIONS

<https://download.nanoxplore.com>

- ✓ NXmap Reference Guide: v2.0 (22oct18)
- ✓ NXmap3 User Manual v3 v3.0.4 (2apr21)
- ✓ NXmap3 Virtual Machine v1 (27may20)
- ✓ NXmap3 using Python IDE v1 (20may20)
- ✓ Licence daemon Reference guide v1.0 (27may20)
- ✓ NXmap3 Library Guide v1 (20may20)
- ✓ NXBase2 User Manual: v2.3.1 (6aug20)
- ✓ NXBoard User Manual: v1.0 (13feb20)
- ✓ NXscope User Manual: v1.1 (13feb20)
- ✓ NXscope startup User Guide: v1.0 (13feb20)
- ✓ NX SpW Bank IP v1.0 (28nov18)
- ✓ NX SERDES IP v1.0 (13feb20)
- ✓ NX DFI DDR2 IP v2.2 (13feb20)
- ✓ NG-Medium datasheet: v2.2 (15sep20)
- ✓ NG-Medium Pinout: v1.0 (9apr21)
- ✓ NG-Medium PKG User guide: v1.1 (21jan21)
- ✓ CMIC Application Note: v1.0 (8feb21)
- ✓ NG-Medium Cfg Guide: v1.2 (20oct20)
- ✓ NG-Medium Power Estimator v1d (09feb21)
- ✓ NG-Medium IBIS models v2 (13feb20)
- ✓ NG-Medium Devkit-v3 UG: v1.04 (18feb19)
- ✓ NG-Medium Radiation report: v3.3.1 (13feb20)
- ✓ NG-Medium Cookbook: v1.5 (13feb20)
- ✓ NG-Large datasheet v1.2 (15sep20)
- ✓ NG-Large Pkg & pinout v1.0 (12feb20)
- ✓ NG-Large Cortex R5 v0.1 (11sep20)
- ✓ NG-Large Power Estimator v1.c (9feb21)
- ✓ NG-Large IBIS models v1.0 (4jun20)
- ✓ NG-Large Devkit-v1 UG v1.2 (4feb20)
- ✓ NG-Ultra datasheet v2.0 (18dec20)
- ✓ NG-Ultra Power Estimator v0.c (9feb21)
- ✓ NG-Ultra IBIS models v1.0 (16jul20)

NX will support  
STAFEED-2021  
By next 24-25/06/21.

Feel free contacting us at  
[sales@nanoxplore.com](mailto:sales@nanoxplore.com),  
[support@nanoxplore.com](mailto:support@nanoxplore.com)  
in order to schedule  
a WeBex/MSTeams/Skype/GTM call.



	DEVICE	NX1H35AS		NX1H40TSP	
		CMOS Planar		CMOS Planar	
TECHNOLOGY	Process Lithography	65nm		65nm	
	ASIC Gates	550 000		1 900 000	
LOGIC MODULES	3x TILES + 2x CGBs			7x TILES + 4x CGBs	
	Register	32 256		129 024	
	LUT4	408 LUT4*28*rows		137 088	
	Carry	96 CY*28*rows		32 256	
EMBEDDED RAM		2.8Mb		9.7Mb	
	OPRAM	288PRAM*2*48kb		9 216	
	Core Register File	168		672	
	Core Register File bits	168*64*16+6bits		672kb with ECC	
CLOCK Domains / PLL		24 / 4		32 / 4	
ADDITIONAL FEATURES	SpaceWire PHY (8 IOBs)	2x / Complex IOBank		20	
	DDR PHY (11 IOBs)	2x / Complex IOBank		20	
	DSP Blocks (5)	562SP*2rows		384	
	SpaceWire link I/F 430 Mbps	CODEC		1	
	SERDES Tx/Rx (7)	-		4HEX SERDES 6.25Gbps	
	Hard IP Processor core (P)	-		ARM Cortex-R5	
	SoC Peripherals (C)	NO		NO	
	ADC / DAC (A)	-		-	
		NO		NO	
		-		-	
		-		-	
		-		-	
INPUTS/OUTPUTS	I/O Simple Bank	374		674	
	I/O Complex Bank	5		14	
	I/O Service Bank	30 IOBs per bank		34 IOBs per bank	
		34 IOBs		1	
PACKAGES		48		38	
	CQFP-352	(CQ352)		-	
	CLGA-484 / CCGA-484	(LF484) / (CG484)		-	
	PBGA-484	(PF484)		-	
	CLGA-625 / CCGA-625	(LG625) / (CG625)		-	
	PBGA-625	(FG625)		-	
	CLGA-1752 / CCGA-1752	(LF1752) / (CF1752)		674	
	PCBGA-1752	(FF1752)		674	
PACKAGING	PCBGA-1760	(FF1760)		-	
		-		-	



## NG medium

**Technology:** 65nm CMOS

**Organic Package:** FG625

**Ceramic Packages:** CQ352, LG625, CG625

**Industrial status:**

**Proposed QA level:** PR, M, MP, MPS and E grades

**Proposed QA flows:** PR, M, Q and V grades

NXmap3	Proto	EK v4	M/S parts Organic	Mil Parts Ceramic	Spa parts Ceramic	SMD
NOW	NOW	NOW	OCT21	NOW	NOW	Under DLA

**News:** ESCC-Q-ST-70-61 evaluation of CCGA-625 PCB assembly started. KOM done.

**Qualification:** NX1H35AS (= NG-Medium Metal-fix) CQFP-352 completed. CLGA-625 one running, according DLA & ESA instructions. SMD 5962F20217 approval expected soon.

**Flight Heritage:** Floripasat-2/Payload-X on-hold waiting for launch with Amazonia-1.

## NG large

**Technology:** 65nm CMOS

**Organic Package:** FF1752

**Ceramic Packages:** LF1752, CF1752

**Industrial status:**

**Proposed QA level:** PR, M, MP grades

**Proposed QA flows:** PR, M, Q and V grades

NXmap3 v3.5	Proto PR	EK v1	Mil parts Organic	Mil parts Ceramic	Spa parts Ceramic	ESCC
NOW	NOW	NOW	TBD	Sep21	Q2-22	Q2-22

**News:** ESCC-Q-ST-70-61 evaluation of CCGA-1752 PCB assembly started. KOM done.

**Alert:** 1752pins package shortage → Prototypes & EK leadtimes are currently 20-30wks.

**Qualification:** Industrialization done. LF/CF1752 Qualification started.

**Flight Heritage:** Many design wins. Several Flight heritages in the pipe for coming year(s).

### Definitions

- NXmap, Prototype(s), Product Evaluation Kit (EK): Availability dates.
- Military & Space parts Organic: Organic product industrialized & ORDER entry OPEN.
- Military parts Ceramic: Ceramic product, M/MP flow(s) industrialized & ORDER entry OPEN.
- Space parts Ceramic: Ceramic product, Q/V flows industrialized & ORDER entry OPEN.
- SMD or ESCC: Expected date when either the SMD or ESCC specification number will become valid & active.



FPGA	DEVICE	NX2H540TSC		NX2H500TSA	
	TECHNOLOGY	FDSOI		FDSOI	
	Process Lithography ASIC Gates	28nm 8 000 000		28nm 4 000 000	
SoC	LOGIC MODULES				
	Register	15x TILES + 9x CGRs		11x TILES + 7x CGRs	
	LUT4	3840FF on 15rows		3840FF on 11rows	
	Carry	408LUT4 on 15rows 96CY on 15rows		408LUT4 on 11rows 96CY on 11rows	
	33.9Mb		21.8Mb		
	DPRAM	672BRAM*48kb		448BRAM*48kb	
	Core Register File	28F * 1316 tiles		28F * 712 tiles	
	Core Register File bits	2632*32*18bits 1480Kb Hardened		1424*32*18bits 801Kbit Hardened	
CLOCK Domains / PLL					
		50 / 7		50 / 7	
SoC	ADDITIONAL FEATURES				
	SpaceWire PHY (8 IOBs)	2x / Complex IOBank		2x / Complex IOBank	
	DDR PHY (11 IOBs)	20		20	
	DSP Blocks (S)	9 rows		7 rows	
	SpaceWire link I/F 430 Mbps	CODEC		CODEC	
	SERDES Tx/Rx (T)	8QUAD SERDES 12,500bps		4QUAD SERDES 12,500bps	
	Hard IP Processor core (P)	ARM Cortex-R52		NO	
	SoC Peripherals (C)	DAHRIA		NO	
	ADC / DAC (A)	YES		128bits 10Mapi	
DESIGN SECURITY					
		YES		YES	
IOB+	INPUTS/OUTPUTS				
	I/O Simple Bank	740		544	
	I/O Complex Bank	24 IOBs per bank		24 IOBs per bank	
	I/O Service Bank	34 IOBs per bank		34 IOBs per bank	
		44 IOBs		44 IOBs	
		204 IOBs DDR Bank		2 Direct Bank x24 with ADC	
	28 IOBs per 8Scan bank		1 Direct Bank x16 with DAC		
PACKAGING	PACKAGES				
	CQFP-352	(CQ352)		3#	
	PBGA-484	(FF484)		-	
	CLGA-1152 / CCGA-1152	(LF1152) / (CF1152)		48*48mm / 0.5mm pitch	
	CLGA-1752 / CCGA-1752	(LF1752) / (CF1752)		23*23mm / 1mm pitch	
	FCBGA-1760	(FF1760)		35*35mm / 1mm pitch	
		45*45mm / 1mm pitch		740	
		45*45mm / 1mm pitch		740	

**Technology:** 28nm FDSOI

**Organic Package:** FF1760

**Ceramic Packages:** LF1752, CF1752

**Industrial status:**

**Proposed QA level:** PR, M, MP, (MPS) and E grades

**Proposed QA flows:** PR, M, Q and V grades

NXmap3	Proto V2	EK v2	M/S Parts Organic	Mil Parts Ceramic	Spa Parts Ceramic	SMD Or ESCC
Sep21	Q1-22	Q1-22	Q3-22	Q3-22	Q4-22	TBD

**News:** NG-Ultra v1 evaluation almost completed. NG-Ultra v2 design in-progress for launch in Wfab in coming months. Reliability & Radiation v1 testing done.

**Qualification:** It will start as soon as NG-Ultra v2 packaged parts available.

**Flight Heritage:** Many Space projects positionned on that device. FH will come faster.

**Technology:** 28nm FDSOI

**Organic Package:** FF484, FF1152

**Ceramic Packages:** CQ352, LF/CF1152

**Industrial status:**

**Proposed QA level:** PR, M, MP, MPS and E grades

**Proposed QA flows:** PR, M, Q and V grades

NXmap3	Proto v1	EK V1	M/S Parts Organic	Mil Parts Ceramic	Spa Parts Ceramic	SMD Or ESCC
Dec21	Q2-22	Q2-22	Q1-23	H1-23	H1-23	TBD

**News:** Products impacted by COVID-19 pandemic & current shortage in semiconductor. Wfab launch delayed end-21. So, 1st prototypes & EK available not before mid-22 best case.

**Qualification:** It will take benefit of NG-Ultra one. Extended qualification will start as soon as 1st silicon available.

**Flight Heritage:** Will come fast.

#### Definitions

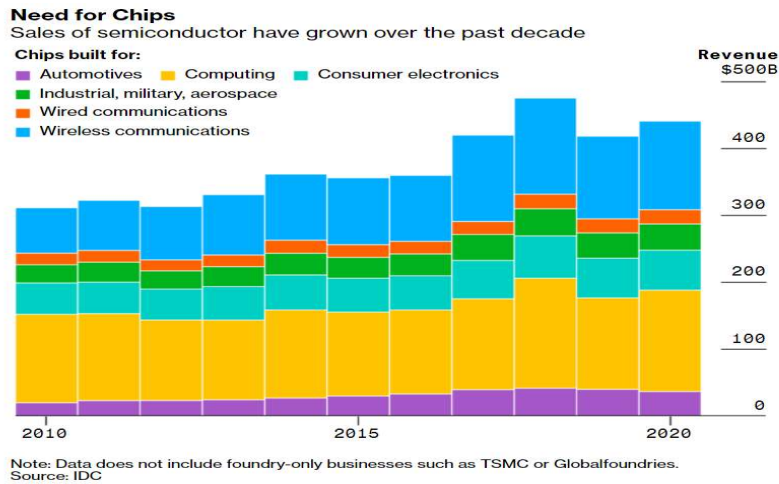
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## BLOOMBERG article dated 29/03/2021:

A pandemic that reshaped demand.

Overall demand for semiconductors of all stripes—from basic microcontrollers and memory chips to the most sophisticated high-performance processors—has grown over the past decade, as smartphone usage and computing power boomed. A steady rise in semiconductor sales faltered in 2019, but was then boosted 5.4% by 2020's shelter-in-place demand for home gadgets, IDC data shows. At the same time, once largely mechanical machines like cars have become smarter, entailing the use of many more chips.



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NanoXplore is a privately owned fabless company based in France. The company offers a comprehensive portfolio of SoCs and FPGA devices for aerospace, defense and industrial markets. Products include a leading radiation hardened FPGA portfolio.

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Feel free to contact [support@nanoxplore](mailto:support@nanoxplore) for any questions about NanoXplore HW or SW issues