Data Sheet
Graphic Cards for FUJITSU Desktop ESPRIMO

FUJITSU Desktop ESPRIMO are used for common office applications. To fulfill the demands of demanding applications, ESPRIMO Desktops can be ordered with either graphics on board or a graphics card plugged into an expansion slot.

General

Fujitsu offers for its ESPRIMO Desktops different suppliers for graphic cards, which are selected carefully. Parameters like quality, availability and experiences play an important role.

The ESPRIMO Desktops feature on board graphics within their chipsets and/or processors. However, a range of optional graphic cards are available.

	NVIDIA GeForce GTX 1050 Ti 4GB (available with FH bracket only)
Description	Full height PCI Express Gen3 - graphics controller card
Field of application	DX12.0 gaming support with high range performance. Smooth playing up to 2560x1440 resolution possible. Prepared for upcoming 8k displays with up to 7680x4320 resolution. All application with lowest noise during high graphic load.
Mainboard interface	PCI Express x16 mechanical and electrical
TV Interfaces	HDMI
Connectors on graphic-board	3*DP, 1*HDMI, 1*DVI-D dual link,
Shipped adapters	-
Possible monitor combinations	3*DP, HDMI, DVI-D => five monitor interfaces; four interfaces can be used simultaneously 2nd DVI-D possible via DP / DVI adapter cable (optional); VGA possible via DP / VGA adapter (optional)
Electrical power consumption	5W - 75Wmax (depending on graphic load)
Technical specification	Local Frame Buffer: 4GB GDDR5, mounted on graphics board Graphics processor: 1290 MHz Core Frequency Memory Frequency: 3504 MHz, 128bit memory interface DX12.0 support, OpenGL 4.5 DP 1.4, HDMI 2.0b HDCP support (High Bandwidth Digital Content Protection) at all digital connectors Occupies 2 PCI Express slots
Operating systems	Windows 10 Home / 10 Pro
Dimensions (W x D in mm)	174 x 112, two slot full height bracket
Cooling solution	with fan, but lowest noise emission over all load conditions through dual slot cooling
Approvals	CE, VCCI (Released for Fujitsu systems only)
Driver certification	Windows 10 Home, Windows 10 Pro
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor EDID data) Color depth [bit/pixel]: up to 36bit

Resolutions / Display types

Resolutions					Display type:	
	DP	HDMI	DVI	VGA	4:3 or 5:4	16:9 or 16:10
640/720*480, 720*576, 800*600, 1024*768,1152*864,1280*960, 1280*1024,	x	x	x	x	x	
1280*720,1280*768, 1280*800, 1360*768, 1600*1024,1680*1050	x	x	x	x		x
1600*1200, 1920*1440, 2048*1536	x	x	x	x	x	
1920*1080, 1920*1200, 2048*1152	x	x	x	x		x
2560*1440, 2560*1600	x	x	x			x
4k Resolution: 3840*2160, 4096*2160	x	x				x
5k Resolution: 5120*2880 (via DP)	x					x
8k Resolution: 7680*4320 (need 2*DP connectors simultaneous)	x					x

	NVIDIA GeForce RTX 2060 Mini 6GB (available with FH bracket only)
Description	Full height PCI Express Gen3 - graphics controller card
Field of application	DX12.1 gaming support with highest possible performance. Smooth playing up to 3840x2160 resolution possible. Prepared for upcoming 8k displays with up to 7680x4320 resolution. All application with lowest noise during high graphic load.
Mainboard interface	PCI Express Gen3 x16 mechanical and electrical
TV Interfaces	HDMI
Connectors on graphic-board	3*DP, 1*HDMI, 1*DVI-D
Shipped adapters	-
Possible monitor combinations	3*DP, HDMI, DVI-D => five monitor interfaces; four interfaces can be used simultaneously 2nd DVI-D possible via DP / DVI adapter cable (optional); VGA possible via DP / VGA adapter (optional)
Electrical power consumption	10W - 160Wmax (depending on graphic load)
Technical specification	Local Frame Buffer: 6GB GDDR6, mounted on graphics board Graphics processor: 1680 MHz Core boost Frequency Memory Frequency: 7000 MHz, 192bit memory interface DX12.1 support, OpenGL 7.5 DP1.3/1.4 ready, HDMI 2.0b HDCP support (High Bandwidth Digital Content Protection) at all digital connectors Occupies 2 PCI Express slots
Operating systems	Windows 10 Home / 10 Pro
Dimensions (W x D in mm)	210 x 130, two slot full height bracket, excess width
Cooling solution	Two 100mm fans with lowest noise emission over all load conditions through dual slot cooling
Approvals	Released for Fujitsu systems only
Driver certification	Windows 10 Home, Windows 10 Pro
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor EDID data) Color depth [bit/pixel]: up to 36bit

Resolutions / Display types

Resolutions					Display type:	
	DP	HDMI / USB Type C	DVI	VGA	4:3 or 5:4	16:9 or 16:10
640/720*480, 720*576, 800*600, 1024*768,1152*864,1280*960, 1280*1024,	x	x	x	x	x	
1280*720,1280*768, 1280*800, 1360*768, 1600*1024,1680*1050	x	x	x	x		x
1600*1200, 1920*1440, 2048*1536	x	x	x	x	x	
1920*1080, 1920*1200, 2048*1152	x	x	x	x		x
2560*1440, 2560*1600	x	x	x			x
4k Resolution: 3840*2160, 4096*2160	x	x				x
5k Resolution: 5120*2880 (via DP)	x					x
8k Resolution: 7680*4320 (need 2*DP connectors simultaneous)	x					x

	NVIDIA GeForce RTX 2080 Mini 8GB (available with FH bracket only)
Description	Full height PCI Express Gen3 - graphics controller card
Field of application	DX12.1 gaming support with highest possible performance. Smooth playing up to 3840x2160 resolution possible. Prepared for upcoming 8k displays with up to 7680x4320 resolution. All application with lowest noise during high graphic load.
Mainboard interface	PCI Express Gen3 x16 mechanical and electrical
TV Interfaces	HDMI
Connectors on graphic-board	3*DP, 1*HDMI, 1*USB Type-C
Shipped adapters	-
Possible monitor combinations	3*DP, HDMI, USB Type-C => five monitor interfaces; four interfaces can be used simultaneously DVI-D possible via DP / DVI adapter cable (optional); VGA possible via DP / VGA adapter (optional)
Electrical power consumption	10W - 250Wmax (depending on graphic load)
Technical specification	Local Frame Buffer: 8GB GDDR6, mounted on graphics board Graphics processor: 1515 MHz Core Frequency Memory Frequency: 7000 MHz, 256bit memory interface DX12.1 support, OpenGL 7.5 DP 1.2; DP 1.3/1.4 ready, HDMI 2.0b HDCP support (High Bandwidth Digital Content Protection) at all digital connectors Occupies 2 PCI Express slots
Operating systems	Windows 10 Home / 10 Pro
Dimensions (W x D in mm)	210 x 130, two slot full height bracket, excess width
Cooling solution	Two 100mm fans with lowest noise emission over all load conditions through dual slot cooling
Approvals	Released for Fujitsu systems only
Driver certification	Windows 10 Home, Windows 10 Pro
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor EDID data) Color depth [bit/pixel]: up to 36bit

Resolutions / Display types

Resolutions					Display type:	
	DP	HDMI / USB Type C	DVI	VGA	4:3 or 5:4	16:9 or 16:10
640/720*480, 720*576, 800*600, 1024*768,1152*864,1280*960, 1280*1024,	x	x	x	x	x	
1280*720,1280*768, 1280*800, 1360*768, 1600*1024,1680*1050	x	x	x	x		x
1600*1200, 1920*1440, 2048*1536	x	x	x	x	x	
1920*1080, 1920*1200, 2048*1152	x	x	x	x		x
2560*1440, 2560*1600	x	x	x			x
4k Resolution: 3840*2160, 4096*2160	x	x				x
5k Resolution: 5120*2880 (via DP)	x					x
8k Resolution: 7680*4320 (need 2*DP connectors simultaneous)	x					x

	NVIDIA Quadro P400 2GB (available w/ LP or FH bracket)
Description	Low Profile PCI Express 3.0 x16 - graphics controller card
Field of application	2 GB of GPU memory makes it easy to manage complex 2D and 3D models. Support for three 5K displays (5120x2880 @ 60Hz) or one 8K plus one 5K displays with HDR color gives you a wide visual workspace to view your work in extremely high resolution.
Mainboard interface	PCI Express x16
TV Interfaces	-
Connectors on graphic-board	3*miniDP
Shipped adapters	-
Possible monitor combinations	miniDP, miniDP, miniDP => three monitor support Up to 3*DP possible via miniDP to DP adapter cable (optional) Up to 3*DVI-D possible via Display Port / DVI-D adapter cable (optional) Up to 3*HDMI possible via Display Port /HDMI adapter (FTS accessories) Up to 3*VGA possible via Display Port /VGA adapter (FTS accessories) Any combination of all interfaces possible
Electrical power consumption	5W - 30 Wmax (depending on graphics load)
Technical specification	Local Frame Buffer: 2GB GDDR5, mounted on graphics board Graphics processor: 1227 MHz Core Frequency Memory Frequency: 2000 MHz, 128bit memory interface Peak Memory bandwidth: Up to 32 GB/s DX12.1 support, OpenGL 4.5 DP 1.3 (DP 1.4 ready) HDCP 2.2 support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows 10 Home / 10 Pro
Dimensions (W x D in mm)	154mm * 69mm (without bracket dimensions)
Cooling solution	Active
Approvals	CE, FCC, ICES, RCM, BSMI, KC, UL, VCCI
Driver certification	Windows 10 Home, Windows 10 Pro
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor EDID data) Color depth [bit/pixel]: 8/16/32

Resolutions / Display types

Resolutions	DP	HDMI	DVI	VGA	Display type: 4:3 or 5:4	Display type: 16:9 or 16:10
640/720*480, 720*576, 800*600, 1024*768,1152*864,1280*960, 1280*1024,	x	x	x	x	x	
1280*720,1280*768, 1280*800, 1360*768, 1600*1024,1680*1050	x	x	x	x		x
1600*1200, 1920*1440, 2048*1536	x	x	x	x	x	
1920*1080, 1920*1200, 2048*1152	x	x	x	x		x
2560*1440, 2560*1600	x	x	x			x
4k Resolution: 3840*2160, 4096*2160	x	x				x
5k Resolution: 5120*2880 (via DP)	x					x
8k Resolution: 7680*4320 (need 2*mDP connectors simultaneous)	x					x

Benchmarks

The data reflects laboratory performance only. The customer configuration may perform differently, depending on the software, components and peripherals used.

The benchmark results are derived from 3DMark Firestrike Scores and reflect the graphic score performance results.

Graphics controller	3DMARK (Firestrike graphic perf.)
NVIDIA GeForce RTX 2080 Ti * (only as reference)	32.000
NVIDIA GeForce RTX 2080 Mini *	26.000
NVIDIA GeForce RTX 2060 *	19.000
NVIDIA GeForce GTX 1050 Ti *	7.500
NVIDIA Quadro P400 *	2.100
Intel® processor graphics	3DMARK (DX11)
Intel® Core™ i7-8700 processor **	2.350
Intel® Core™ i5-8500 processor **	2.100
Intel® Core™ i3-8100 processor **	2.000
Intel® Pentium® G5400 **	1.200

* Test system for graphics cards:

FUJITSU Celsius M770	D3498
Processor	Xeon W2125
System Memory	2 x 8 GB DDR4
Storage	SSD 256 GB
Driver Nvidia graphic:	419.17

** Test system for Intel processor graphics

FUJITSU Desktop ESPRIMO D958	D3622-A11
Processor	see table above
System Memory	2 x 4 GB DDR4-2666MHz
Storage	SSD 256 GB
3DMark 2011	Performance Score (Prof)
OS	Windows® 10 Pro
System BIOS Version	latest
Driver	latest

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