



ASUS B650E / B650 Motherboards

Brand/Series		ROG Strix				ProArt	TUF Gaming				Prime				
Model		ROG STRIX B650E-E	ROG STRIX B650E-F	ROG STRIX B650-A	ROG STRIX B650E-I	Proart B650-CREATOR	TUF GAMING B650-PLUS WIFI	TUF GAMING B650-PLUS	TUF GAMING B650M-PLUS WIFI	TUF GAMING B650M-PLUS	PRIME B650-PLUS	PRIME B650M-A AX	PRIME B650M-A WIFI	PRIME B650M-A	
Photo															
CPU socket		AM5													
Chipset		B650													
Form factor		ATX	ATX	ATX	ITX	ITX	ITX	ITX	mATX	mATX	ATX	mATX	mATX	mATX	
Power architecture		16+2(70A)	12+2(80A)	12+2(60A)	10+2 (70A)	12+2 (60A)	12+2 (60A)	12+2 (60A)	12+2 (60A)	12+2 (60A)	—	—	—	—	
Pre-mount I/O shield		V	V	V	V	V	V	V	V	V	—	—	—	—	
Memory	# Slots, Maximum capacity	4 x DIMM, Max. 128GB, DDR5	4 x DIMM, Max.128GB, DDR5	4 x DIMM, Max.128GB, DDR5	2 x DIMM, Max.64GB, DDR5	4 x DIMM, Max.128GB, DDR5	4 x DIMM, Max.128GB, DDR5	4 x DIMM, Max.128GB, DDR5	4 x DIMM, Max.128GB, DDR5	4 x DIMM, Max.128GB, DDR5	4 x DIMM, Max.128GB, DDR5	4 x DIMM, Max.128GB, DDR5	4 x DIMM, Max.128GB, DDR5	4 x DIMM, Max.128GB, DDR5	
	OptiMem	6400+	6400+	6400+	6400+	6400+	6400+	6400+	6400+	6400+	6400+	6400+	6400+	6400+	
	OptiMem II	OptiMem II	OptiMem II	OptiMem II	OptiMem II	OptiMem II	OptiMem II	OptiMem II	OptiMem II	OptiMem II	OptiMem II	OptiMem II	OptiMem II	OptiMem II	
Graphics		HDMI 2.1 (4K)/ DP 1.4	HDMI 2.1 (4K)/ DP1.4	HDMI 2.1 (4K)/ DP1.4	HDMI 2.1 (4K)/ Type-C DP out	HDMI 2.1 (4K)/ Type-C DP out	HDMI 2.1 (4K)/ DP1.4	HDMI 2.1 (4K)/ DP1.4	HDMI 2.1 (4K)/ DP1.4	HDMI 2.1 (4K)/ DP1.4	DP1.4/HDMI2.1	DP1.4/HDMI2.1/D_Sub	DP1.4/HDMI2.1/D_Sub	DP1.4/HDMI2.1/D_Sub	
Expansion slots	PCIe 5.0 x16	2 x PCIe 5.0 x16 SafeSlot (6x16 or 8x4)	1 x PCIe 5.0 x16 SafeSlot (6x16)	—	1 x PCIe 5.0 x16 SafeSlot (6x16)	—	—	—	—	—	—	—	—	—	
	PCIe 4.0 x16	1 x PCIe 4.0 x16 (6x4)	1 x PCIe 4.0 x16 (6x4)	1 x PCIe 4.0 x16 SafeSlot (6x16) 1 x PCIe 4.0 x16 (6x4)	—	2 x PCIe 4.0 x16 SafeSlot (6x16 or 8x4) 1 x PCIe 4.0 x16 (max at 4x)	1 x PCIe 4.0 x16 SafeSlot Core+ 1 x PCIe 4.0 x16 slot (max @ 4x)	1 x PCIe 4.0 x16 SafeSlot Core+ 1 x PCIe 4.0 x16 slot (max @ 4x)	1 x PCIe 4.0 x16 SafeSlot Core+ 1 x PCIe 4.0 x16 slot (max @ 4x)	1 x PCIe 4.0 x16 SafeSlot Core+ 1 x PCIe 4.0 x16 slot (max at 4x)	1 x PCIe 4.0 x16 SafeSlot Core+ 3 x PCIe 4.0 x16 (6x1)	1 x PCIe 4.0 x16 SafeSlot core+ 2 x PCIe 4.0 x16 (6x1)	1 x PCIe 4.0 x16 SafeSlot core+ 2 x PCIe 4.0 x16 (6x1)	1 x PCIe 4.0 x16 SafeSlot core+ 2 x PCIe 4.0 x16 (6x1)	
	PCIe x1 4.0	—	2 x PCIe 4.0 x1	2 x PCIe 4.0 x1	—	1 x PCIe 4.0 x1	2 x PCIe 4.0 x1	2 x PCIe 4.0 x1	1 x PCIe 4.0 x1	1 x PCIe 4.0 x1	2 x PCIe 4.0 x1	—	—	—	
Thunderbolt support		1 x TB header	1 x TB header	1 x TB header	—	1 x TB header	1 x TB header	1 x TB header	1 x TB header	1 x TB header	—	—	—	—	
SATA 6Gb/s		4	4	4	2	4	4	4	4	4	—	8	4	4	
Storage & connectivity	M.2	1 x 22110 (PCIe 5.0 x4) 1 x 2280 (PCIe 5.0 x4) 1 x 2280 (PCIe 4.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 22110 (PCIe 4.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 2280 (PCIe 4.0 x4) 1 x 22110 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 22110 (PCIe 4.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 22110 (PCIe 4.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 22110 (PCIe 4.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 22110 (PCIe 4.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 22110 (PCIe 4.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 22110 (PCIe 4.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 22110 (PCIe 4.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 22110 (PCIe 5.0 x4) 1 x 2280 (PCIe 5.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 2280 (PCIe 4.0 x4)	1 x 2280 (PCIe 5.0 x4) 1 x 2280 (PCIe 4.0 x4)
	Front USB-C port	1 x USB 3.2 Gen 2	1 x USB 3.2 Gen 2	1 x USB 3.2 Gen 2	1 x USB 3.2 Gen 2	1 x USB 3.2 Gen 2x2	1 x USB 3.2 Gen 1	1 x USB 3.2 Gen 1	1 x USB 3.2 Gen 1	1 x USB 3.2 Gen 1	1 x USB 3.2 Gen 1	1 x USB 3.2 Gen 1	1 x USB 3.2 Gen 1	1 x USB 3.2 Gen 1	
	Fast-charging USB-C	—	—	—	—	10GFI, with Quick Charge 4+	—	—	—	—	—	—	—	—	
	USB 3.2 Gen 2x2	1(10GB)	1(10GB)	1(10GB)	1(10GB)	10GB	10GB	10GB	10GB	10GB	10GB	—	—	—	
	USB 3.2 Gen 2	8(10GB, 6A + 10GB)	4 (2A10GB, 10GB)	5 (3A10GB, 10GB)	6 (4A10GB, 10GB)	3 (2A10GB)	3 (2A10GB)	3 (2A10GB)	2 (2A10GB)	2 (2A10GB)	4 (3A+1C 6B)	2 (2A6B)	2 (2A6B)	2 (2A6B)	
	USB 3.2 Gen 1	2(2A6B)	6 (4A6B, 2A6B)	2 (2A6B)	2 (2A6B)	2 (2A6B)	3(2A10GB)	3(2A10GB)	4 (1A6B, 2A10GB)	4 (1A6B, 2A10GB)	5 (2A6B, 2A+1C 6B)	5(2A6B, 2A10GB)	5(2A6B, 2A10GB)	5(2A6B, 2A10GB)	
USB 2.0	8(4A6B, 4A6B)	8 (4A6B, 4A6B)	8 (4A6B, 4A6B)	4 (2A6B, 2A6B)	6 (2A6B, 4A6B)	8 (4A6B, 4A6B)	8 (4A6B, 4A6B)	8 (4A6B, 4A6B)	8 (4A6B, 4A6B)	6 (2A6B, 4A6B)	8 (4A6B, 4A6B)	8 (4A6B, 4A6B)	8 (4A6B, 4A6B)		
Wireless		Wi-Fi 6E	Wi-Fi 6E	Wi-Fi 6E	Wi-Fi 6E	Wi-Fi 6E-KEY only	Wi-Fi 6	Wi-Fi 6	Wi-Fi 6	1 x Vertical M.2 Socket (Key E)	Wi-Fi 6	Wi-Fi 6	Wi-Fi 6		
Networking	Ethernet	1 x Intel® 2.5Gb	1 x Intel® 2.5Gb	1 x Intel® 2.5Gb	1 x Intel® 2.5Gb	1 x Realtek 2.5Gb 1 x Realtek 1Gb	1 x Realtek 2.5Gb	1 x Realtek 2.5Gb	1 x Realtek 2.5Gb	1 x Realtek 2.5Gb	1 x Realtek 2.5Gb	1 x Realtek 2.5Gb	1 x Realtek 2.5Gb		
	LANGuard	V	V	V	V	—	V	V	V	V	V	V	V		
	Audio codec	ALC 4080	ALC 4080	ALC 4080	ALC 4080	Realtek ALC 887	Realtek ALC S1200A	Realtek ALC S1200A	Realtek ALC897, 5 jack	Realtek ALC897, 5 jack	Realtek ALC897, 5 jack	Realtek ALC897, 3 jack	Realtek ALC897, 3 jack	Realtek ALC897, 3 jack	
Audio	Impedance sense	V	V	V	V	—	—	—	—	—	—	—	—		
	DAC/AMP	Savitech SV3H712 AMP	Savitech SV3H712 AMP	Savitech SV3H712 AMP	Savitech SV3H712 AMP	—	—	—	—	—	—	—	—		
	Audio cover	V	V	V	—	V	V	V	V	V	—	—	—		
	LED illuminated audio jacks	—	—	—	V	—	—	—	—	—	—	—	—		
	Premium capacitors	V	V	V	V	V	V	V	V	V	V	V	V		
	Audio effects	Sonic Studio III + Sonic Studio Virtual Mixer Sonic Radar III DTS® Sound Unbound Two-Way AI Noise Cancellation	Sonic Studio III + Sonic Studio Virtual Mixer Sonic Radar III DTS® Sound Unbound Two-Way AI Noise Cancellation	Sonic Studio III + Sonic Studio Virtual Mixer Sonic Radar III DTS® Sound Unbound Two-Way AI Noise Cancellation	Sonic Studio III + Sonic Studio Virtual Mixer Sonic Radar III DTS® Sound Unbound Two-Way AI Noise Cancellation	—	Two-Way AI Noise Cancellation	DTS Audio Processing Two-Way AI Noise Cancellation	DTS Audio Processing Two-Way AI Noise Cancellation	DTS Audio Processing Two-Way AI Noise Cancellation	DTS Audio Processing Two-Way AI Noise Cancellation	—	—	—	
Cooling		Fan headers: 8 Heatsinked M.2: 4	Fan headers: 7 Heatsinked M.2: 3	Fan headers: 7 Heatsinked M.2: 3	Fan headers: 3 Heatsinked M.2: 1	Fan headers: 7 Heatsinked M.2: 2	Fan headers: 7 Heatsinked M.2: 3	Fan headers: 7 Heatsinked M.2: 3	Fan headers: 6 Heatsinked M.2: 2	Fan headers: 6 Heatsinked M.2: 2	Fan headers: 6 Heatsinked M.2: 1	Fan headers: 5 Heatsinked M.2: —	Fan headers: 5 Heatsinked M.2: —		
Dynamic DC Switcher		V	—	—	V	—	—	—	—	—	—	—	—		
AI Networking (GameFirst VI)		V	V	V	V	Creation First	—	—	—	—	—	—	—		
Two-Way AI Noise-Cancellation		V	V	V	V	V	V	V	V	V	—	—	—		
DIY Friendly	M.2 Q-Latch	V	V	V	V	V	V	V	V	V	—	—	—		
	PCIe Slot Q-Release	V	V	V	—	—	—	—	—	—	—	—	—		
	PCIe 5.0 SafeSlot	V	V	—	V	—	—	—	—	—	—	—	—		
	SafeDIMM	V	V	V	V	V	V	V	V	V	—	—	—		
Pre-mount I/O shield		V	V	V	V	V	V	V	V	V	—	—	—		
BIOS FlashBack™		V	V	V	V	V	V	V	V	V	V	V	V		
Aura Sync		V	V	V	V	V	V	V	V	V	V	V	V		
RGB Header		3 x ARGB + 1 x RGB	3 x ARGB + 1 x RGB	3 x ARGB + 1 x RGB	1 x ARGB + 1 x RGB	3 x ARGB + 1 x RGB	3 x ARGB + 1 x RGB	3 x ARGB + 1 x RGB	3 x ARGB + 1 x RGB	3 x ARGB + 1 x RGB	3 x ARGB + 1 x RGB	3 x ARGB + 1 x RGB	3 x ARGB + 1 x RGB		
CPU power connector		8-pin + 8-pin	8-pin + 4-pin	8-pin + 4-pin	8-pin	8+4-pin	8+4-pin	8+4-pin	8+4-pin	8 pin	8 pin	8 pin	8 pin		
COM port/ header		—	—	—	—	V	V	V	V	1 x header	1 x header	1 x header	1 x header		
TPM		Firmware TPM	Firmware TPM	Firmware TPM	Firmware TPM	Firmware TPM	Firmware TPM	Firmware TPM	Firmware TPM	TPM header	TPM header	TPM header	TPM header		

