THE EXCLUSIVE GUIDE TO BUYING A B450 MOTHERBOARD

TOP MEDIA QUOTES

Tom's Hardware

"If you're planning to buy an AMD Ryzen 2000 series CPU, B450-powered motherboards promise solid performance at prices that won't break the bank."

AMD Launches B450 Chipset With StoreMI Feature, Thomas Soderstrom,
https://www.tomshardware.com/news/amd-b450-chipset-launch,37529.html

TechRadar

"The AMD Ryzen 7 2700X fully outpaces the Intel Core i7-8700K, thanks to serious improvements made with Zen+ and higher clock speeds ending Team Blue's frequency advantage."

AMD Ryzen 7 2700X review, Kevin Lee,
https://www.techradar.com/reviews/amd-ryzen-7-2700x

Tom's Hardware

"AMD's Ryzen 7 2700X is another big step forward for AMD. The improved boost algorithms add to Ryzen's performance advantage in heavily-threaded applications, while the increased frequency and reduced memory latency provide a boost to a wide range of workloads."

AMD Ryzen 7 2700X Review: Redefining Ryzen, Paul Alcorn,
https://www.tomshardware.com/reviews/amd-ryzen-7-2700x-review,5571.html

AnandTech

"With support for 2-way CrossFire multi-graphics configurations, the B450M Mortar and B450M Mortar Titanium could comfortably be the foundations of a powerful microATX gaming system."

Analyzing B450 for AMD Ryzen: A Quick Look at 25+ Motherboards, Gavin Bonshor,
https://www.anandtech.com/show/13091/analyzing-b450-for-amd-ryzen-a-quick-look-at-all-the-motherboards/19

TechPowerUp

"The MSI B450 GAMING PRO CARBON AC comes in at just under US$130, a bargain for this much motherboard. The full, undiluted overclocking experience, excellent audio performance, and dark, sleek look all come together to create a very attractive package."

MSI B450 GAMING PRO CARBON AC Review, Black Haru,
https://www.techpowerup.com/reviews/MSI/B450_GAMING_PRO_CARBON_AC/15.html
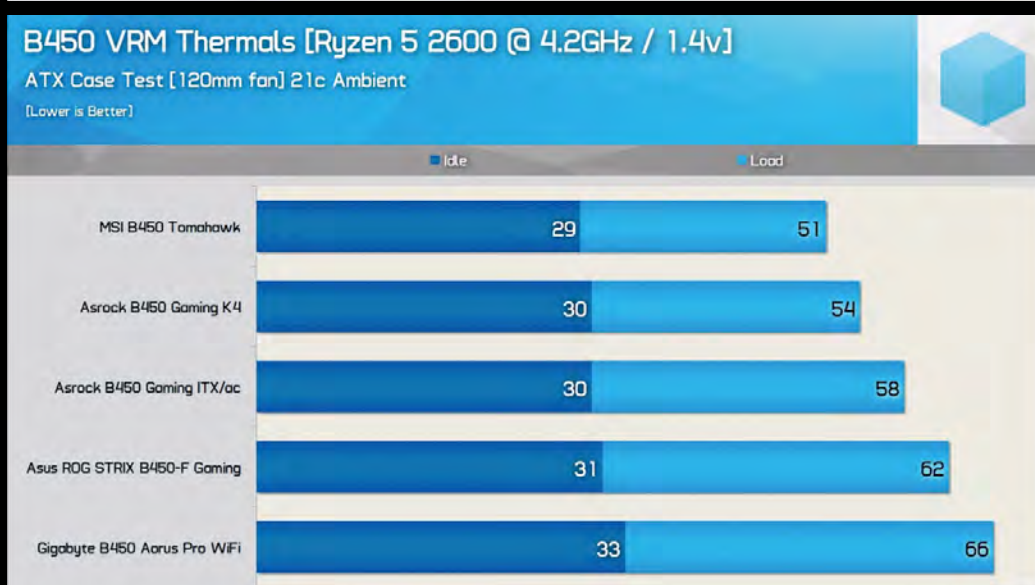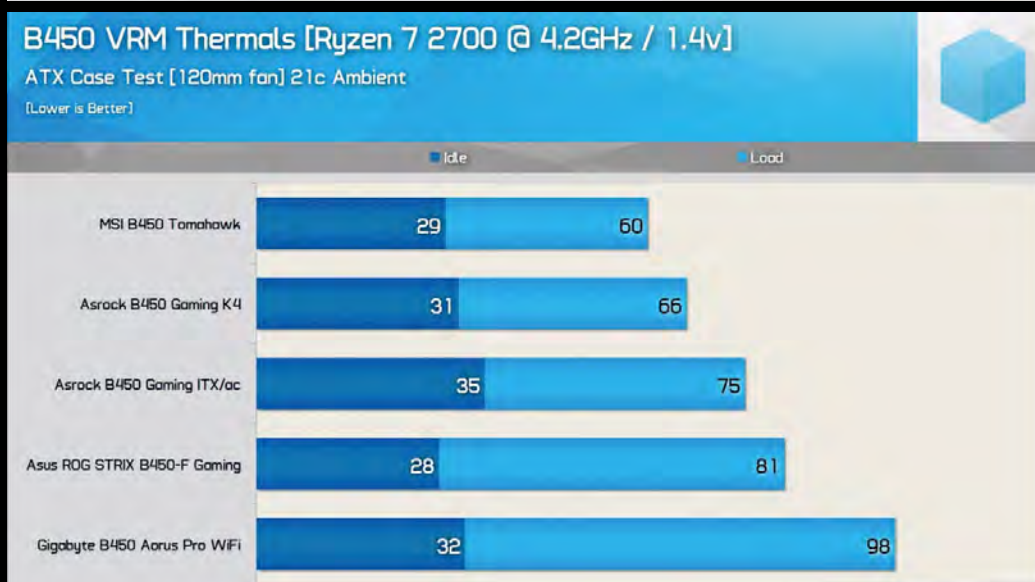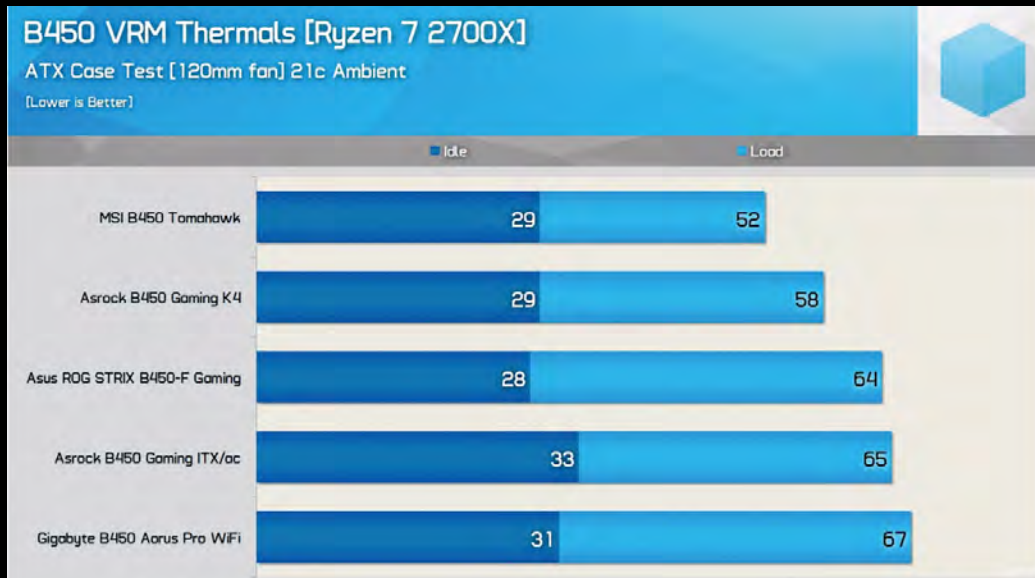
ProClockers

"The Tomahawk series has once again proven to be a menacing addition to the arsenal gaming lineup. Strong performance across the board from zero compromises is apparent."

MSI B450 TOMAHAWK Motherboard Review, Damon Bailey,
https://proclockers.com/reviews/motherboards/msi-b450-tomahawk-motherboard-review/page/0/8

Hardware Unboxed

"The MSI board does appear to have the best VRM design, and that was certainly the case when testing. And their big heatsinks probably don't hurt either."

B450 VRM Temp Test: Asus & Gigabyte Disappoint!, Hardware Unboxed,
https://www.youtube.com/watch?v=EqQcgwz1hYA&t=859s

B450 VRM Thermals [Ryzen 7 2700X]
ATX Case Test [120mm fan] 21c Ambient
[Lower is Better]

	Idle	Load
MSI B450 Tomahawk	29	52
Asrock B450 Gaming K4	29	58
Asus ROG STRIX B450-F Gaming	28	64
Asrock B450 Gaming ITX/ac	33	65
Gigabyte B450 Aorus Pro WiFi	31	67

B450 VRM Thermals [Ryzen 7 2700 @ 4.2GHz / 1.4v]
ATX Case Test [120mm fan] 21c Ambient
[Lower is Better]

	Idle	Load
MSI B450 Tomahawk	29	60
Asrock B450 Gaming K4	31	66
Asrock B450 Gaming ITX/ac	35	75
Asus ROG STRIX B450-F Gaming	28	81
Gigabyte B450 Aorus Pro WiFi	32	98

B450 VRM Thermals [Ryzen 5 2600 @ 4.2GHz / 1.4v]
ATX Case Test [120mm fan] 21c Ambient
[Lower is Better]

|	Idle	Load
MSI B450 Tomahawk	29	51
Asrock B450 Gaming K4	30	54
Asrock B450 Gaming ITX/ac	30	58
Asus ROG STRIX B450-F Gaming	31	62
Gigabyte B450 Aorus Pro WiFi	33	66

Disclaimer: There is no endorsement from the publishers above and they are the owners of their respective marks.

AMD CORE TECHNOLOGIES ON NEW B450 CHIPSET AND 2ND GEN AMD RYZEN™ PROCESSOR

AMD StoreMI

√ Boost your HDD with the speed of a SSD
√ Create a virtual SSD quickly
√ Works with any SSD; no hardware restriction like Intel® Optane™
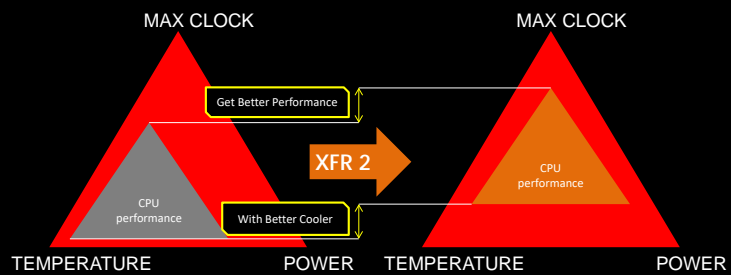√ Included free with AMD AM4 400 Series motherboards

1TB SATA HDD — COST $50
1TB SSD — COST $500
StoreMI 1TB HDD + 16GB SSD + — COST $100
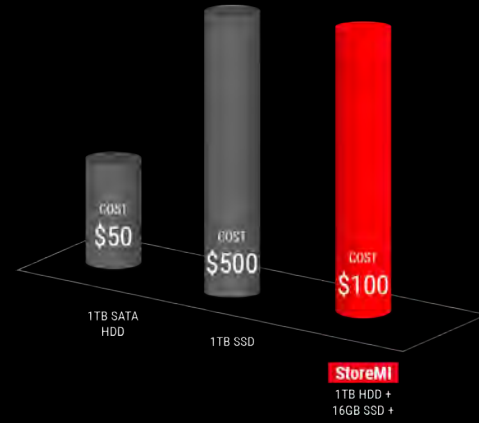
AMD Precision Boost 2

√ High core frequencies are maintained across any number of CPU cores
√ Results in snappier performance for extreme users

A Simplified View of Boost

Precision Boost 2 in 1T-8T Workload
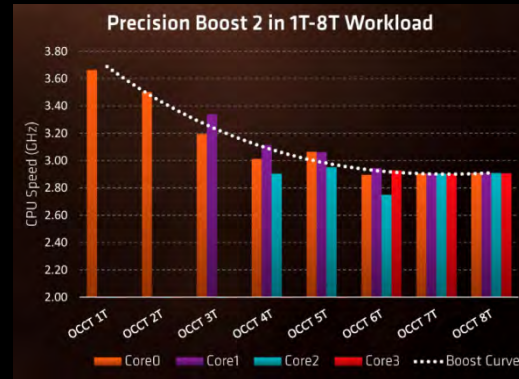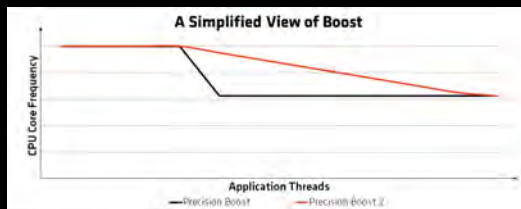
AMD XFR 2
(Extended Frequency Range 2)

√ Additional boosted CPU frequency depending on temperature headroom
√ Additional performance when using extreme cooling
√ Exceed Precision Boost limits when possible

MAX CLOCK — Get Better Performance — CPU performance — XFR 2 — CPU performance — With Better Cooler
TEMPERATURE — POWER — TEMPERATURE — POWER

AMD PBO
(Precision Boost Overdrive)

√ Combination of Precision Boost 2 and Extended Frequency Range 2
√ "X" processor and "400 Series" motherboards only
√ Can be toggled in BIOS


Effective Frequency

4
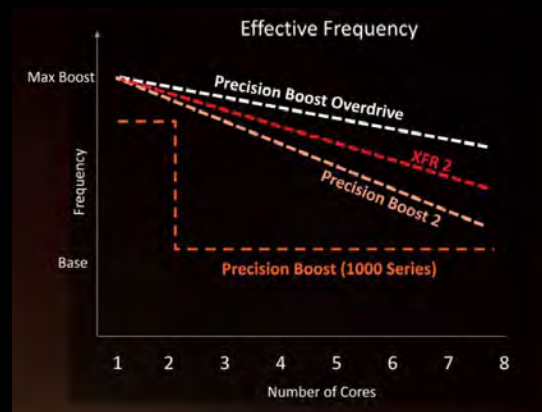
MSI MAXIMIZES THE B450 PERFORMANCE AND UNLEASHES FULL POTENTIAL

Meticulously planned, designed with brand new features, and perfectly built for gamers and professionals: MSI B450 motherboards are the impeccable match for AMD Ryzen™ processors, and are here to continue a legacy of greatness.

Core Boost

√ Stabilize CPU power supply to ensure multi-core processor guarantees non-stop working and gaming
√ Creates perfect conditions for your CPU overclocking
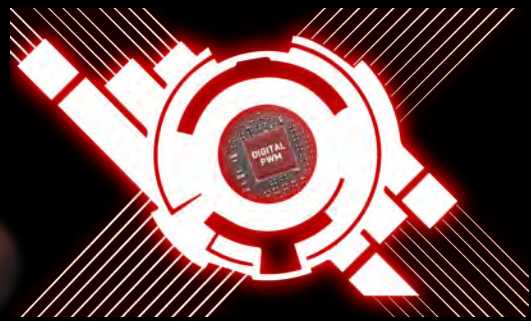
Extended Heatsink

√ Thermal solution for more cores and higher performance
√ MSI extended PWM heatsink and enhanced circuit design ensures even high-end Ryzen™ CPU to run in full speed with MSI motherboards

Extended heatsink

BIOS Flashback+

√ Update/Recover BIOS within minutes
√ Even works without a CPU, memory or graphics card installed

STEP 1
No CPU/DDR/VGA required.

STEP 2
Connect 24 pin & CPU power

STEP 3
Insert dongle with BIOS file

STEP 4
Use Flashback hotkey/button

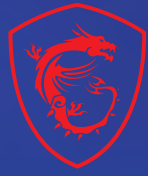BIOS FLASHBACK+

Unlock the Potential of Your Memory

A-XMP
√ Just one click to set your memory timings and speed to its optimal settings for the best performance and stability
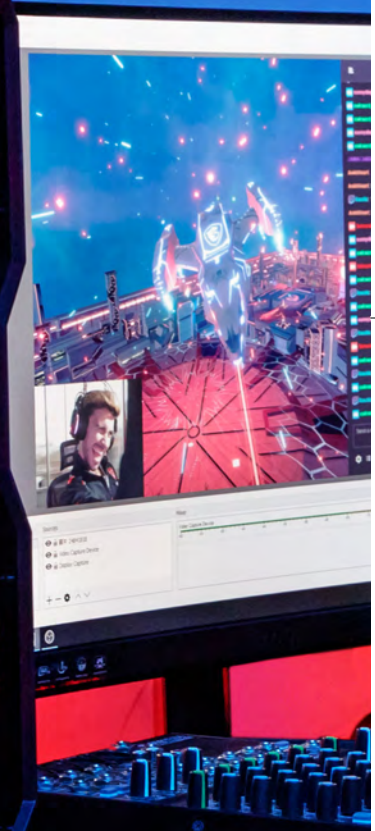
MEMORY TRY IT
√ Pre-built memory settings to increase the performance of your DDR4
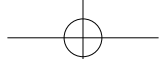√ Works even if you are new to memory frequency or timings

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THE DASHING WEAPON FOR STRIKING BEASTLY COMBOS

Recommended to run with
Ryzen^{TM} 7 2700X/2700
Ryzen^{TM} 5 2600X/2600

B450 GAMING PRO CARBON AC

- Mystic Light (RGB) 16.8M Colors/ 17 Effects
- Ultimate power phase
- Extended heatsink
- Audio Boost 4 with Nahimic 3
- Core Boost
- BIOS Flashback+

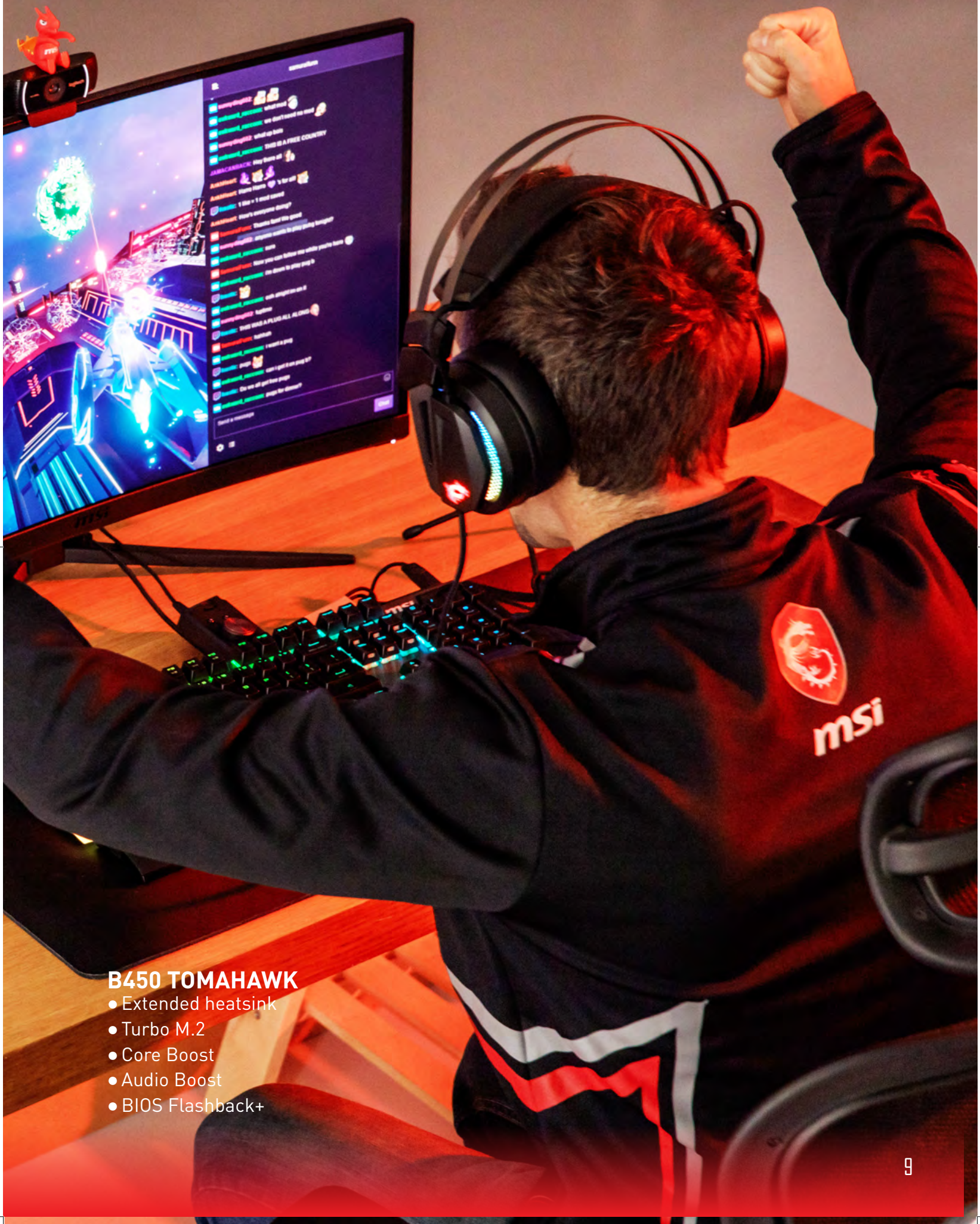# THE DASHING WEAPON FOR STRIKING BEASTLY COMBOS

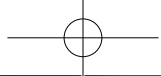Recommended to run with
Ryzen™ 7 2700X/2700
Ryzen™ 5 2600X/2600

B450 TOMAHAWK

- Extended heatsink
- Turbo M.2
- Core Boost
- Audio Boost
- BIOS Flashback+

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THE SUPERTASKER FOR TACKLING MULTIPLE MISSIONS
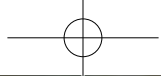
Recommended to run with Ryzen™ 5 2600X/2600

B450 GAMING PLUS
● Turbo M.2
● Audio Boost with Nahimic 3
● Core Boost
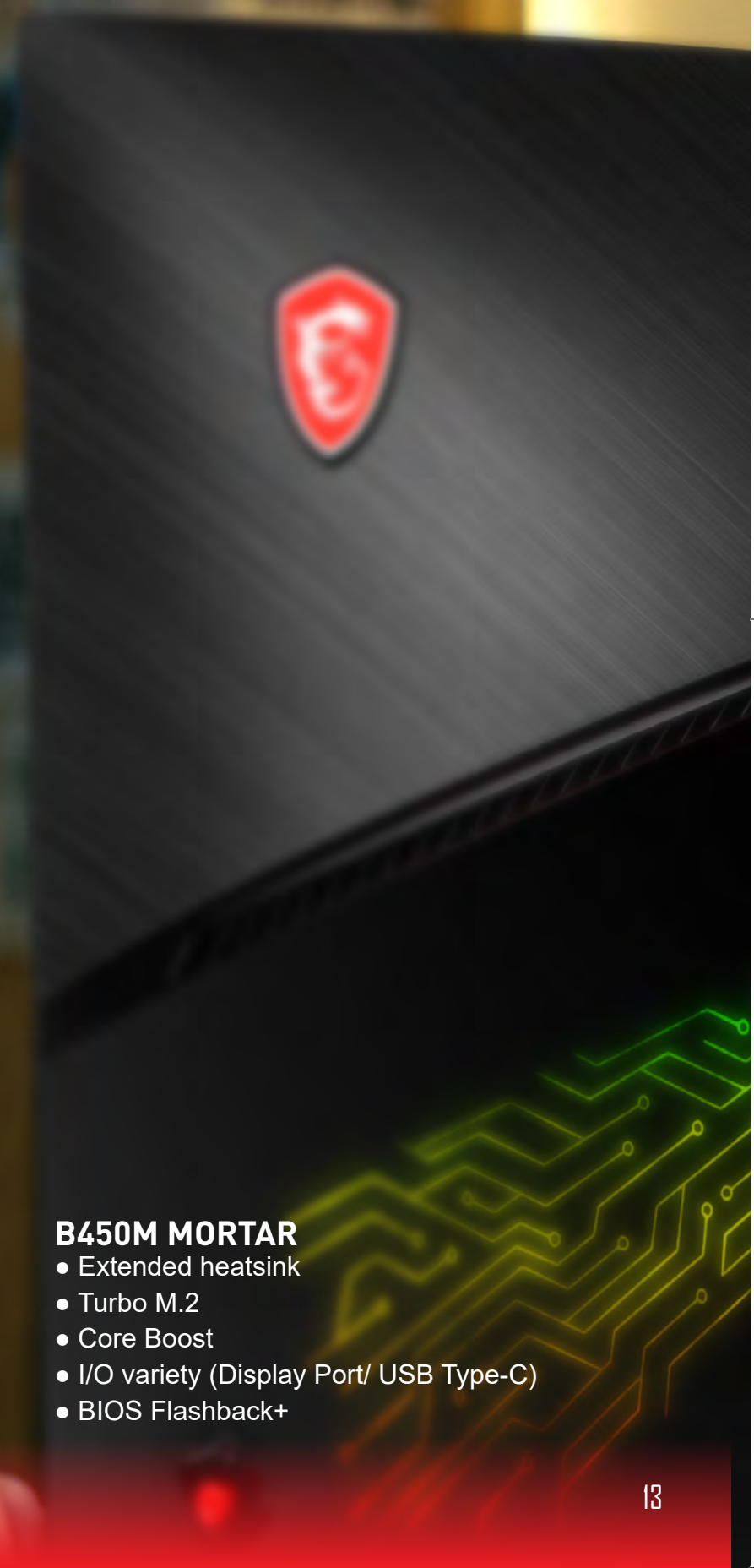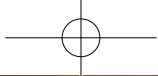● SATA3.0*6
● BIOS Flashback+

THE SUPERTASKER FOR TACKLING MULTIPLE MISSIONS

Recommended to run with Ryzen^{TM} 5 2600X/2600

B450M MORTAR
- Extended heatsink
- Turbo M.2
- Core Boost
- I/O variety (Display Port/ USB Type-C)
- BIOS Flashback+

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THE TRUSTWORTHY COMPANION FOR ACCOMPLISHING DAILY TASKS

Recommended to run with Ryzen™ 5 2400G
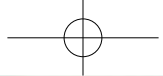
B450M PRO-VDH

- Turbo M.2
- Core Boost
- DDR4 Boost
- Audio Boost
- PCI-E Steel Armor

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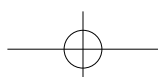
THE TRUSTWORTHY COMPANION FOR ACCOMPLISHING DAILY TASKS
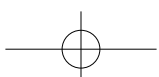
Recommended to run with Ryzen™ 3 2200G

B450M PRO M2
- Turbo M.2
- Core Boost
- DDR4 Boost
- X-Boost
- PCI-E Steel Slot

	B450 GAMING PRO CARBON AC	B450 GAMING PLUS	B450M GAMING PLUS	B450I GAMING PLUS AC		B450 TOMAHAWK	B450M MORTAR TITANIUM
Form Factor	ATX	ATX	M-ATX	Mini-ITX	Form Factor	ATX	M-ATX
Power Phases	11	7	7	9	Power Phases	7	7
CPU Power Connectors	1x 8pin + 1x 4pin	1x 8Pin	1x 8Pin	1x 8Pin	CPU Power Connectors	1x 8Pin	1x 8Pin
Digital CPU POWER Design	●	●	●	●	Digital CPU POWER Design	●	●
DDR4 Boost	●	●	●	●	DDR4 Boost	●	●
M.2 Shield	●	-	-	-	M.2 Shield	-	-
Turbo M.2	1x Turbo M.2, 1x M.2(Gen2 x4)	1x Turbo M.2	1x Turbo M.2	1x Turbo M.2	Turbo M.2	1x Turbo M.2	1x Turbo M.2, 1x M.2(Gen2 x4)
AMD TURBO USB 3.1 Gen2	A+C	2x Type-A	-	-	AMD TURBO USB 3.1 Gen2	A+C	A+C
USB 3.1 Gen1 / USB 2.0	4/6	4/6	8/6	6/4	USB 3.1 Gen1 / USB 2.0	4/6	6/6
PCIe Steel Armor	●	●	●	●	PCIe Steel Armor	●	●
SLI/CF	- / 2-Way	- / 2-Way	-	-	SLI/CF	- / 2-Way	- / 2-Way
Extended Heatsink	●	-	-	-	Extended Heatsink	●	●
Gaming Network	Intel i211AT + Intel 9260 WIFI	RTL8111H	RTL8111H	RTL8111H + Intel 3168 WIFI	Gaming Network	RTL8111H	RTL8111H
Game Boost	1 Gear	1 Gear	1 Gear	1 Gear	Game Boost	1 Gear	1 Gear
Audio	ALC 1220	ALC 892	ALC 887	ALC 887	Audio	ALC 892	ALC 892
Nahimic & Voice boost	●	●	●	-	Nahimic & Voice boost	-	-
RGB Mystic Light	16.8M Colors / 17 Effects	-	-	-	RGB Mystic Light	16.8M Colors / 10 Effects	16.8M Colors / 10 Effects
Mystic Light Extension	RGB/RAINBOW/ CORSAIR	RGB	RGB	RGB	Mystic Light Extension	RGB	RGB
BIOS FLASHBACK+	●	●	●	-	BIOS FLASHBACK+	●	●

PRO SERIES

AMD SOCKET AM4 | B450

	B450M MORTAR	B450M BAZOOKA PLUS	B450M BAZOOKA
	M-ATX	M-ATX	M-ATX
	7	7	7
	1x 8Pin	1x 8Pin	1x 8Pin
	●	●	●
	●	●	●
	-	-	-
	1x Turbo M.2, 1x M.2(Gen2 x4)	1x Turbo M.2	1x Turbo M.2
	A+C	-	-
	6/6	8/6	6/8
	●	●	●
	- / 2-Way	-	-
	●	●	-
	RTL8111H	RTL8111H	RTL8111H
	1 Gear	1 Gear	1 Gear
	ALC 892	ALC 892	ALC 892
	-	-	-
	16.8M Colors / 10 Effects	16.8M Colors / 10 Effects	7 Colors / 5 Effects
	RGB	RGB	RGB
	●	●	-

	B450-A PRO	B450M PRO-VDH	B450M PRO-M2
Form Factor	ATX	mATX	mATX
Power Phases	7	7	7
Digital CPU POWER Design	●	●	●
DDR4 Boost	●	●	●
Turbo M.2	1x Turbo M.2	1x Turbo M.2	1x Turbo M.2
AMD TURBO USB 3.1 Gen2	2x Type-A	-	-
USB 3.1 Gen1 / USB 2.0	4/6	6/8	6/6
PCIe Steel Armor	●	●	-
PCIe Steel Slot	●	-	●
SLI/CF	- / 2-Way	-	- / -
Network	RTL8111H	RTL8111H	RTL8111H
Audio	ALC892	ALC 892	ALC 887
X-Boost	●	●	●
Mystic Light Extension	RGB	RGB	-
BIOS FLASHBACK+	●	-	-

PC BUILD CHECKLIST

CONFIGURATION	MODEL/ SKU	PRICE	REMARK
CPU			
MOTHERBOARD			
COOLER			
RAM			
HDD			
SSD			
VGA			
MONITOR			
CHASSIS			
POWER			
KEYBOARD/ MOUSE			
HEADSET			
OTHERS			
TOTAL			

TRUE GAMING