

Mini LED to penetrate the IT market with the first mini LED backlit notebook PC

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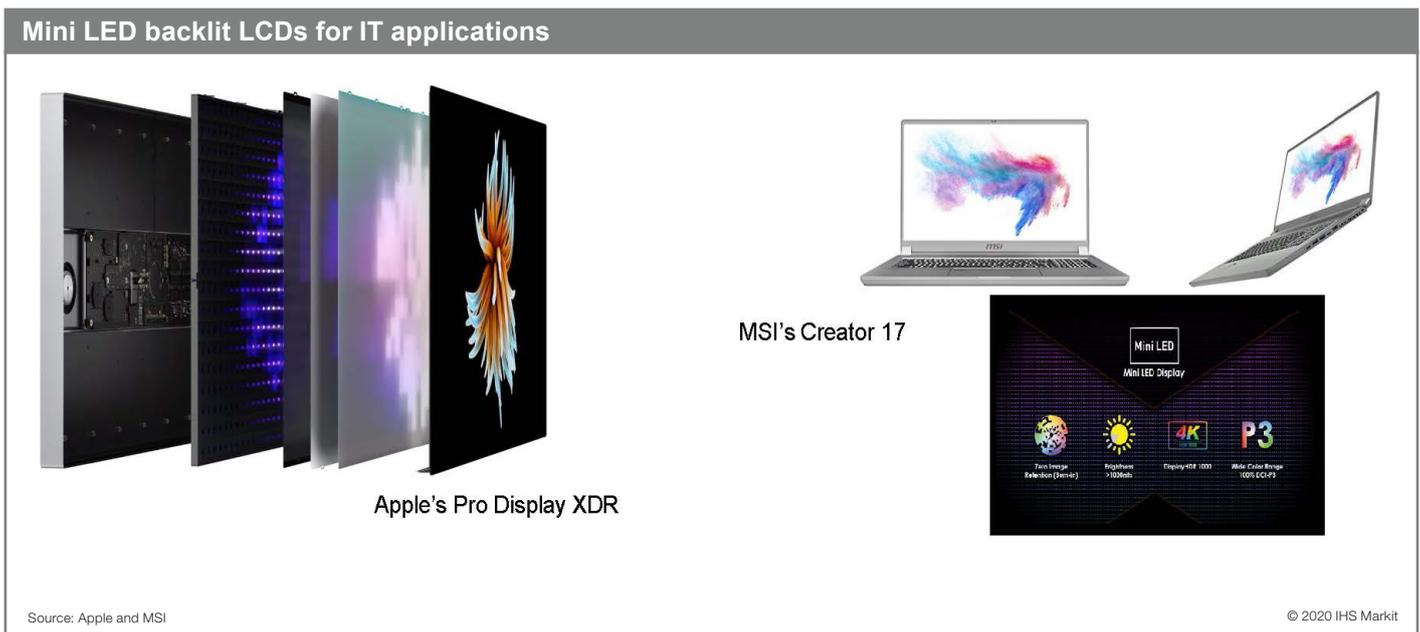
MSI announced the first notebook PC equipped with a mini LED backlit LCD.

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Key findings

- At the end of 2019, MSI launched a new notebook PC, Creator 17, and announced it as the first mini LED backlit notebook PC following Apple's first mini LED backlit LCD monitor, Pro Display XDR.
- Shipments of mini LED backlit LCDs for IT applications is estimated to be much smaller than for TVs.

At the Apple Worldwide Developers Conference (WWDC) 2019, Apple unveiled a new display called the Pro Display XDR, which has started production since the second half of 2019. It is regarded as the first mini LED backlit monitor display commercially available. Following Apple's launch, MSI also announced the launch of its new notebook PC, Creator 17, and promoted it as the first PC equipped with a mini LED backlit LCD toward the end of 2019. Currently, mini LED backlit LCDs are available for both monitors and notebook PCs.



The definition of a mini LED backlit LCD may still be controversial. Strictly speaking, a mini LED is defined as LED chips with the size being in the range of 100–200 μm . However, while a micro LED display should have as many LEDs as the number of its pixels, mini LED backlighting is proposed in order to reduce the number of LEDs by a significant amount. This means that mini LED backlighting may have some flexibility in both the number and size of LEDs. From this perspective, full-array local dimming (FALD) LCDs with fine-pitch LED array can also be regarded as a sort of mini LED backlit LCD.

At present, FALD is prevalent in TV applications. The IHS Markit *Large Area Display Product Roadmap Tracker* has estimated the shipments of mini LED backlit TVs including FALDs as 4 million units for 2019. Most of the shipments are expected to consist of FALD LCDs. However, this kind of fine-pitch local dimming has already penetrated the consumer market.

Meanwhile, shipments of mini LED backlit LCDs is not estimated to be high for IT applications even with FALDs included. Following the IHS Markit *Large Area Display Product Market Tracker*, shipments of notebook PC panels with mini LED backlighting were estimated to be only 3,000 units for 2019, most of them supposedly being the premanufacturing for MSI’s Creator 17 notebook PCs. Panel shipments for Apple’s Pro Display XDR are also estimated to remain at 2,000 units for 2019. As a result, total shipments of mini LED backlit LCDs for IT applications are less than 10,000 units.

Why is the demand for mini LED backlighting so small in the IT market? Mini LED backlight’s main competitor in the TV market is OLED TVs, not LCDs. OLED has pioneered the premium TV market for several years now, and the market for premium picture quality is apparently available currently for mini LED backlit LCDs (including FALDs).

However, OLED’s share is negligible for IT applications and LCD is still the main competitor for all segments in the IT market. Some IT makers are considering mini LED backlighting for their gaming and specialty applications rather than OLEDs because of its high resistance against burn-in. However, their demand is still very small and mini LED backlighting should still be able to compete with LCDs in most IT segments. Its expensive cost and thicker design become more apparent when compared with LCDs. Mini LED backlighting should pioneer the premium IT display segment solely by itself.

Mini LED backlighting for various applications				
	Versus LCD		Versus OLED	
	Pros	Cons	Pros	Cons
TV	<ul style="list-style-type: none"> • Color gamut • Contrast • Slim and narrow bezel 	<ul style="list-style-type: none"> • Expensive cost 	<ul style="list-style-type: none"> • Brightness • High resolution • No burn-in 	<ul style="list-style-type: none"> • Thickness • Halo image defect
OLED has already created a premium segment in which it is the main competitor of mini LED backlighting.				
IT	<ul style="list-style-type: none"> • HDR (brightness + contrast) • Color gamut • Narrow bezel 	<ul style="list-style-type: none"> • Expensive cost • Thickness 	<ul style="list-style-type: none"> • Brightness • No burn-in 	<ul style="list-style-type: none"> • Thickness • Halo image defect
OLED’s share is currently negligible in IT and LCD is still the main competitor.				

Source: IHS Markit

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