	☑
	☑

ˇ ầ ˩ ⊢ ᴰ ˆ ˜ ầ PZT ˇ

ـ ـخي TWS ầ ầ شه ˇ ˚ˆ Â

MEMS(Micro-Electro-Mechanical Systems ŭ̌)

هج˘ ῷ D هج ˘ 3̈ pixcel ˘

Â خي ˆ ˜ ῥ ˘ هى ˠ˘ خي

˘ Â

r ı Ţ : ʿ 3d خيخي

MEMS D هج˘ p ȝ MEMS ˇ CMOS ˘ chiplet Â

mems ˇ ASIC ˘

Â ˘ ˘ ỵ ĭ̈ ˘ ╠

ῥ ᛘ r ȝ Chiplet ˘ 2.5d ˇ 3d ˘ N

Â

ỵ Ὶ D هج˘ Ữ˜ شه ʿ ꟸ˘ Ữ

ˌ هج Â ˘ ˘ ỉ شه

⌠ 2.5d 3d ˘ pcb sip ɜ Â خي

╠ شه ˘ pcb sip ꟸ

ˠ Â

Ạ Chiplet˘ Intel 3̈ خي Ạ ꟸ ˘ ч

ῷ └ Â

Ꞥ ȁ D هج ⇔ Ţ :

	AR ˘ MEMS هج ˚ شه Â ˈ ч ˛ Ӈ هج ˛ ˈ ч pixcel ف˘ ɢ ˘ ӊ ɢ mems هج˘ wire bonding ӊ ʒ˘ 1024 ɢ˘ ˘ ˘ ч ˘ ↓˘ ˘ Â ˈ هج ╟ ˚ D هج˛ ˈ D ˘ mems هج ˘ Ӟ ˛ Â r ˘ ˊ ɢ D هج˘ D هج r ˘ خيmems هج ⌠ ʒ = Â ˈ ⌊ r ˘ ╟ هج شه˛ ˈ ˘ ╟ ˛ ˘ ˛ mems هج ˘ ΐ ˘ ˜ ˘ 50˛ شه Â ᾤ ʒ˘ ɢ هج Â Ạ ⅄ ʒ˘ ɢ Ḃ ʒ Â Ạ mems speaker Â ˈ هج Δ ˘ ˘ Ӈ ˛ ˈ ╟ ↨ ˘ D Ψ ˚ ˘ h = ˘ خي T ˘ h ˘ ASIC ˘ 2 ɢ˘ D ˛ ╟ 1 ɢ Â ˈ ╟ D هج ˛

ʿ ῳ̤ ˘ cis’ ˘ mems speaker’ ꟷ ’ ’ ╠ ħ
Â

ʿ ɢ ᴰ ﮬﺞ ˌ

ʿ Amr̆ tmr̆ gmr̆ ˢ ˘ Ɥ
Â ᴰ ﮬﺞ˘ ᴰ ﮬﺞ ᒉ Ḃ ˘ Asp ᵞ
ঽ Â ˇ Â

ʿ ╠ ﮬﺞ ˌ

⇔ Ţ Ţ ˘ 12 ˇ 1
Â ╠ pixceľ ᒉ ɞ pixcelﺨﻲ120-140 ɥ Â ‰pixcel
↓ ﮬﺞ 1024 ɞ˘ ˘ ƀ ч 9 10
ᒉ ˝Ḩ Â

ʿ ↓ ﺷﮩ ʎ ˌ

ʿ Audiopixel Ɥ Ạ˘ 1024 ɢ 1024 ɞ˛
˘ ˇ ˘ ˘ 1024 ᒉ ˝Ḩ
ᒉ ˝Ḩ ꞈ ˘ ᒉ ˝Ḩ ꞈ ˘ ˝ Â

ʿ ╠ ﮬﺞ ħ ﺷﮩ ˌ

ʿ ╠ ﺷﮩ ᴰ ﮬﺞ˘ mems
ﮬﺞ ↓ ˘ ɞ ᒉ ˝Ḩ mems ﮬﺞ ঽ˘
ﮪ ᵞ˘ Ḃ ˘ Ạ ˘ Ạ
Â ɞ ı˘ Â ╠ ɳ ῳ̤ xMemsﺨﻲ
˘ uSound ﺨﻲstm Â Bosch ӟ ´ ɞ ȝ˘
ﮬﺞˆ ῳ̤̃ ˜ ȁ tws ȁ ȁ ᴪ ⌠ MEMS
ﮬﺞ Â

ʿ ﮬﺞ ˘ ╠ ﮬﺞ ﺷﮩ

ˆ mems هج ˘ ˇ ↓

هج ASIC pa ˘ mems ↓ هج

ˇ ╠ ۱ گ ؛

ʿ AR ˇ VR هج ˘ ˘ ˘

هج˘ mems speaker ɣ˘ ˘

شه ˘ ˥ Â ؛

˘ ˘ ɢ mems هج Ψ شه Â

ar ˇ vr ˘ ᾠ Ӈ Ψ mems ˩ ᴰ هج Â

ʿ ᴰ هج هج

؛

ʿ ف ˘ Ӟ Â oppo˘ ˜

سمه ˘ هج ╠ Ӟ ˩ ˘ 2 ɢ

ˈ ╞ ھ ˚ ˌ

ˈ ﺧﻲ π ı Ţ˘ ╞ ﺧﻲ Ạ ˘

ﮒ ˇ ╞ Â ﺱ ˇ ﺱ 3 ﮒ

Â