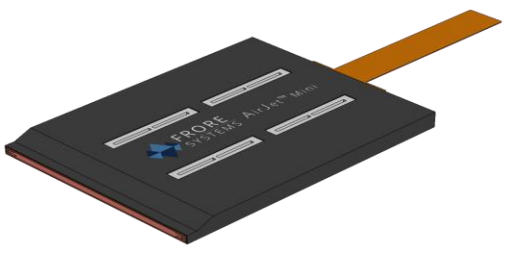
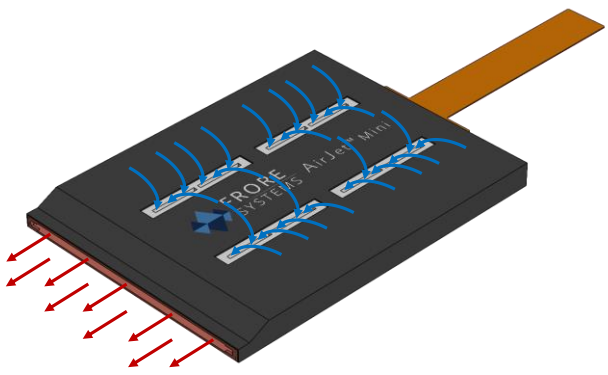
AirJet® Mini



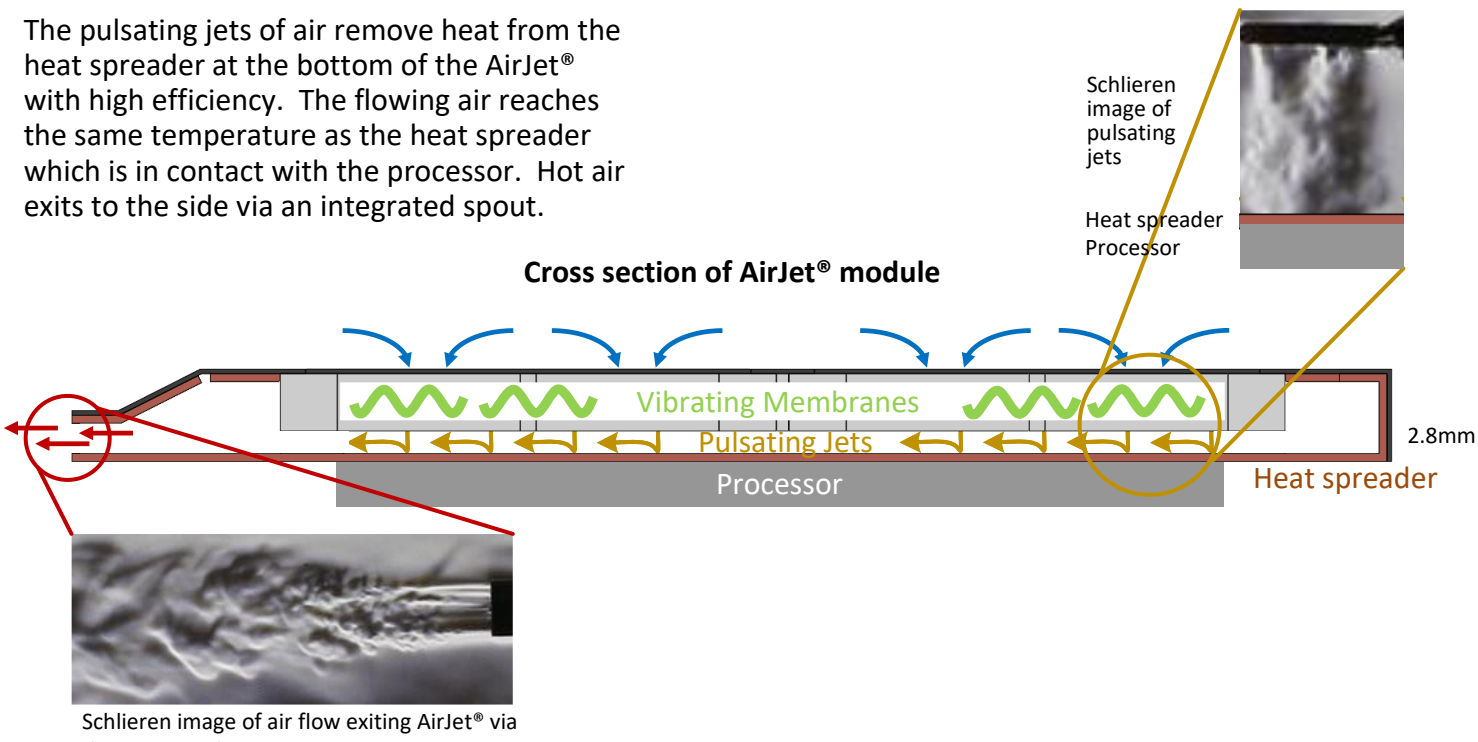
Heat has become the biggest bottleneck in computing. The latest processors promise higher performance, but only 50% or less is realized in actual devices. While processors continue to advance and generate more heat, thermal solutions have not kept pace. Thermal is the only aspect of modern day computing that still uses century old technology. In today's devices, what often determines performance is the capability of the thermal solution, not the sophistication of the processor.

Frore Systems has developed a revolutionary active cooling chip, AirJet®, the first ever solid state thermal solution. AirJet® is a fully self contained active heat sink module. AirJet® is silent, thin, light and outperforms fans.



Inside AirJet® are tiny membranes that vibrate at ultrasonic frequency. These membranes generate a powerful flow of air that enters the AirJet® through inlet vents in the top. Inside AirJet® the air flow is transformed into high velocity pulsating jets.

The pulsating jets of air remove heat from the heat spreader at the bottom of the AirJet® with high efficiency. The flowing air reaches the same temperature as the heat spreader which is in contact with the processor. Hot air exits to the side via an integrated spout.



Schlieren image of air flow exiting AirJet® via the integrated spout

AirJet®'s multiphysics design converges structural, fluidic, acoustic and electrical resonance. AirJet® is manufactured using proprietary techniques that draw from multiple sectors, including semiconductor, flat panel display, aerospace and automotive.

AirJet® Mini generates 1750 Pascals of back pressure, ensuring air flow into and out from product enclosures. When integrated into a compute platform with processor die temperature of 85C, AirJet® Mini removes a net 4.25 Watts of heat at a silent 21 dBA noise level, while consuming 1 Watt of power.

Metric	AirJet® Mini
Total heat dissipation (@ 85C die temperature, 25C ambient)	5.25 W (net 4.25 W)
Maximum noise inside device at 50 cm	21 dBA
Maximum power consumption	1 W
Back pressure	1750 Pa
Dimensions (width x length x thickness)	27.5 x 41.5 x 2.8 mm
Weight	11g

For example, 11 mm thick fanless 13" notebooks have a thermal limit of only 10 Watts sustained processor power. In a similar 11 mm thick notebook, 4 x AirJet® Mini can support a sustained processor power of 20 Watts, at a silent 27 dBA noise level, increasing processor performance by 2x.

In today's devices, what often determines performance is the capability of the thermal solution, not the sophistication of the processor. Thanks to AirJet® Mini, premium super slim notebooks can now deliver on the promise of cutting edge processor technology. Do more.