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Analysis & Recommendation

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Purpose : **Try to resolve the heat issue from the chassis of server by heatsink and 4 fans.**

Conditions : Ta= 40℃,
CPU TDP=55W / 35W (newly added)
QSFP=7watts
SFP=4watts
Other IC=7watts
No ventilation holes in top cover or rear part of chassis.

Customer: **E company**

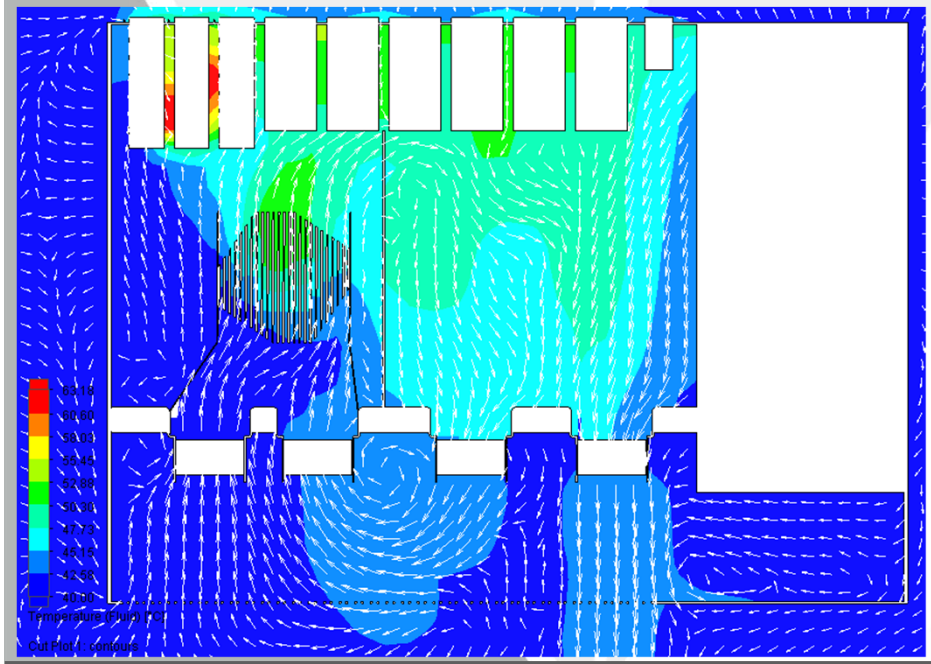
Recommendation 1 –

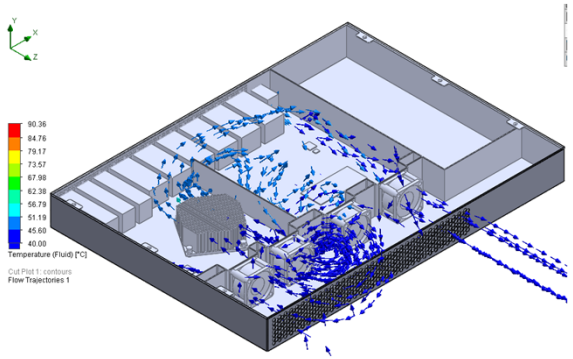
55W with additional guiding cover, but with

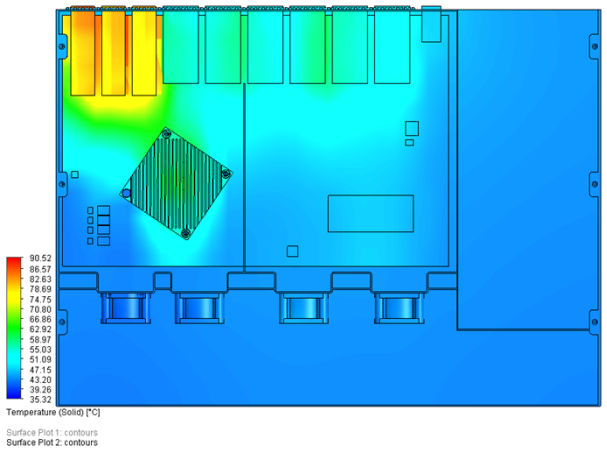
QSFP = 3.85 watts
SFP = 2.2 watts
Other IC = 7 watts

- We suggest to use 2 fans as inhaling inlet and 2 fans for exhaling outlet. Meanwhile, to add extra customized guiding cover and use **55%** as power for heat dissipation.

CPU Tj = **67.9℃**
QSFP = **67.75℃**
SFP = **54.42℃**







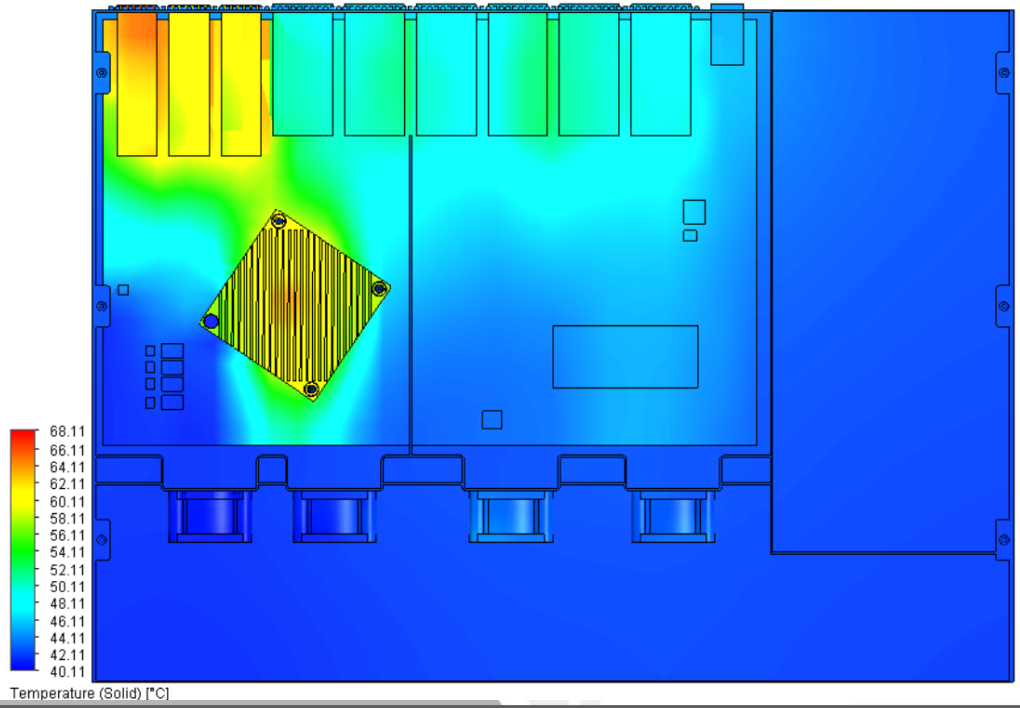
Recommendation 2 –

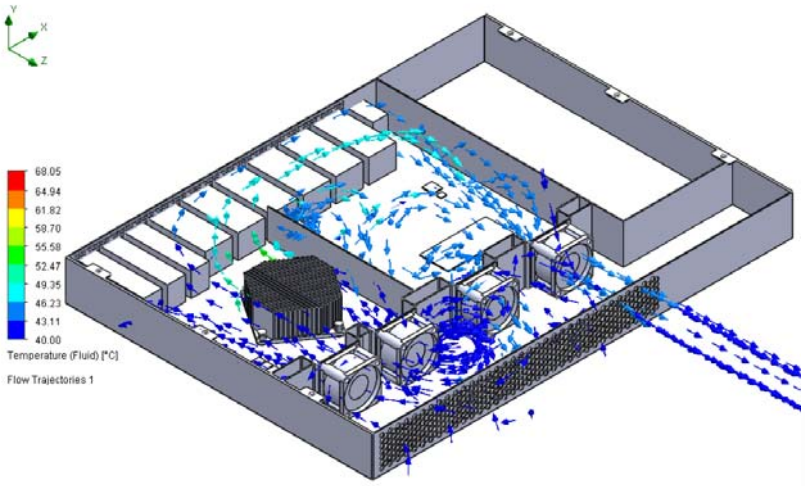
55W without additional guiding cover, but with

QSFP = 3.85 watts
SFP = 2.2 watts
Other IC = 7 watts

- We suggest to use 2 fans as inhaling inlet and 2 fans for exhaling outlet. Meanwhile, to use **55%** as power for heat dissipation.

CPU Tj = **83.06**℃ (> 75℃ as expected)
QSFP = **67.75**℃
SFP = **54.42**℃





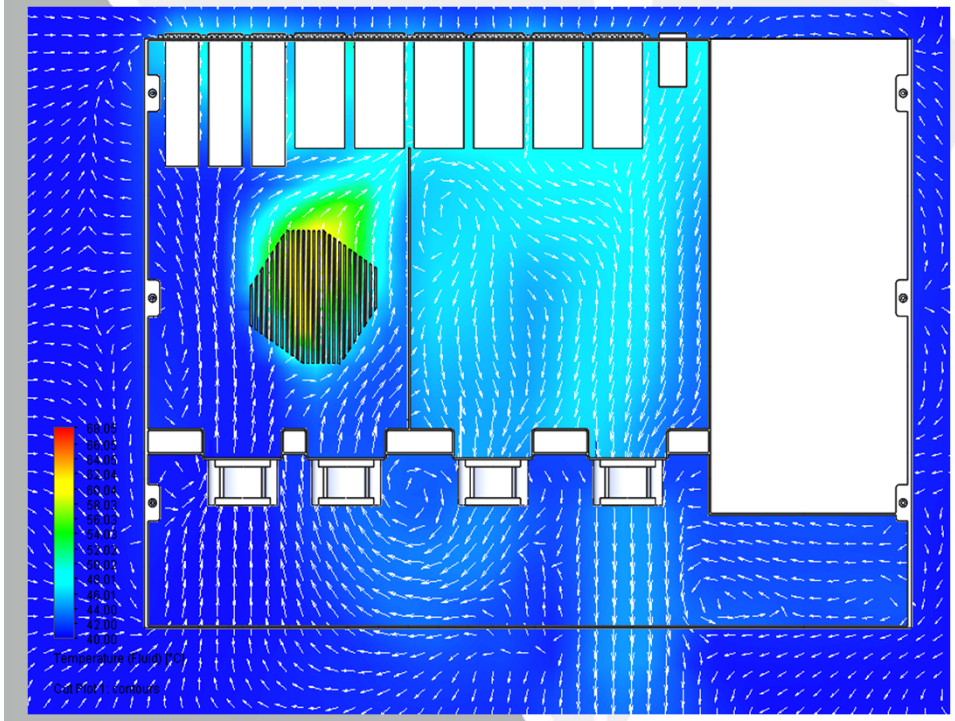
Recommendation 3 –

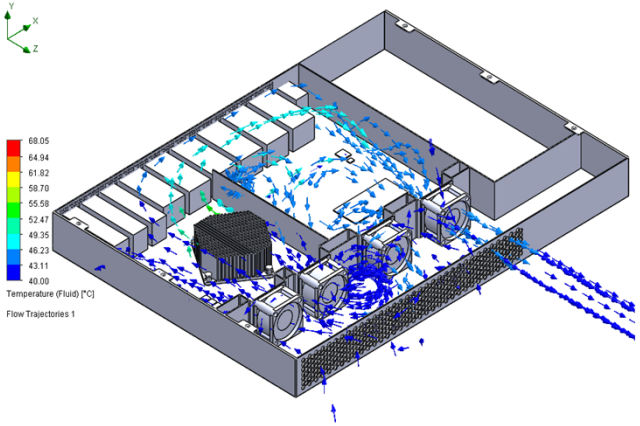
35W without additional guiding cover, but with

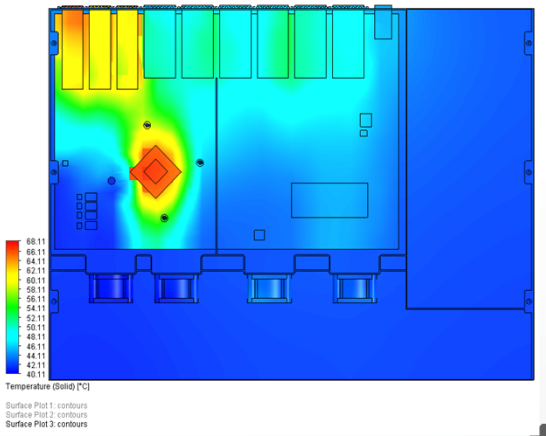
QSFP = 3.85 watts
SFP = 2.2 watts
Other IC = 7 watts

- We suggest to use 2 fans as inhaling inlet and 2 fans for exhaling outlet. Meanwhile, to use **55%** as power for heat dissipation.

CPU Tj = **67.58℃**
QSFP = **68.11℃**
SFP = **55.11℃**







Conclusion & Recommendation

In above analysis, it suggests the issue shall be resolved by ways below:

1. To add an extra customized guiding cover if considering 55W as TDP. And also lower the power to be dissipated for connectors (around 55% of 7W+4W), because the total power won't turn into heat in 100%.

2. To keep original design without guiding cover, but change TDP to 35W. And also lower the power to be dissipated for connectors (around 55% of 7W+4W), because the total power won't turn into heat in 100%.

Either way could satisfy not only CPU performance, but also stable temp for connectors including QSFP and SFP.

Certainly, it's also available to add the partition between air inlet and outlet, extended to the front part of chassis, but the effect is only 1~2 ℃ improvement maximum. Therefore, it's not cost-effective to do this.

Thanks.
Thermal Team.
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