[00143] The calculating block 1120 may output the signal Pout1 indicating "P1" and the signal Pout3 indicating "P3". The calculating block 1120 may output the signal Pout2 indicating "P2 + P3" for the purpose of sharing an allowable power "Pmax3 – P3" of the little core 1253 with the medium core 1252. That is, the calculating block 1120 may output the signal Pout2 indicating "P2 + P3" being a sum of the power "P3" to be provided to the little core 1253 and the power "P2" to be provided to the medium core 1252.

[00144] The comparing block 1130 may set the threshold value "Pth1" to the available power "Pmax1" of the big core 1251 and may set the threshold value "Pth3" to the available power "Pmax3" of the little core 1253. To provide an allowable power of the little core 1253 to the medium core 1252, the comparing block 1130 may set "Pmax2 + Pmax3" being a sum of the allowable power "Pmax2" of the medium core 1252 and the allowable power "Pmax3" of the little core 1253 to the threshold value "Pth2".

[00145] Because "P1" indicated by the signal Pout1 is not greater than "Pth1", the comparing block 1130 may not output the signal INT1. Because "P2 + P3" indicated by the signal Pout2 is less than "Pth2", the comparing block 1130 may not output the signal INT2. Because "P3" indicated by the signal Pout3 is less than "Pth3", the comparing block 1130 may not output the signal INT3.

[00146] Because the signal INT2 is not output to the DVFS controller 1210_2 of the SoC 1200b, afterwards, the DVFS controller 1210_2 may continuously request the voltage Vout2 having a current level from the PMIC 1100. As such, power corresponding to "P2" may be continuously supplied to the medium core 1252.

[00147] Alternatively, the DVFS controller 1210_2 may request the voltage Vout2 having a greater level than a current level from the PMIC 1100. As such,

WHAT IS CLAIMED IS:

1. An electronic circuit comprising:

a converter configured to output a first voltage for a first cluster and a second voltage for a second cluster; and

a controller, wherein

when a first power is lower than a first available power of the first cluster, the first power being provided to the first cluster based on the first voltage, and a second power is higher than a second available power of the second cluster, the second power being provided to the second cluster based on the second voltage, the controller is configured to output a first interrupt signal such that a level of the second voltage is adjusted based on a first threshold value and a sum of the first power and the second power, the first threshold value being determined based on the first available power and the second available power.

2. The electronic circuit of claim 1, wherein the controller is further configured to calculate the first power based on the first voltage and a first current, and to calculate the second power based on the second voltage and a second current, the first current being associated with the first voltage, the second current being associated with the second voltage.

3. The electronic circuit of claim 1 or claim 2, wherein when the second power decreases to a value that is less than the second available power, the controller is further configured to output a second interrupt signal based on the second power and the second available power.

4. The electronic circuit of any one of claims 1 to 3, wherein when the first power is lower than the first available power and the second power is higher than the second available power, the controller is further configured to output the first interrupt signal further based on a comparison between the sum and the first threshold value.

5. The electronic circuit of any one of claims 1 to 3, wherein when the first power is lower than the first available power and the second power is higher than the second available power, the controller is further configured to output the first interrupt signal such that the level of the second voltage decreases further based on the sum and the first threshold value.

6. The electronic circuit of any one of claims 1 to 5, wherein the controller is further configured to output a control signal for controlling the converter in response to a request for adjusting a level of the first voltage.

7. The electronic circuit of claim 1 or claim 2, wherein when the first interrupt signal is output at a first time point, the controller is further configured to output a second interrupt signal for adjusting the level of the second voltage at a second time point after the first time point based on the sum and a second threshold value, the second threshold value being different from the first threshold value.

8. The electronic circuit of claim 7, wherein the second threshold value is less than the first threshold value.

9. An electronic circuit comprising:

a converter configured to:

output a first voltage and a first current to a first cluster, the first current being associated with the first voltage, and

output a second voltage and a second current to a second cluster, the second current being associated with the second voltage; and

a controller, wherein:

when a first calculation value is greater than a first setting value of the first cluster, the first calculation value being calculated based on the first voltage and the first current, depending on a comparison between a second calculation value and a second setting value of the second cluster, the second calculation value being calculated based on the second voltage and the second current, the controller is configured to output an interrupt signal such that a level of the first voltage is adjusted based on a first threshold value and a first sum of the first calculation value and the second calculation value, or based on the first calculation value and a second threshold value, and

the first threshold value is determined based on a first available power and a second available power, and the second threshold value is determined based on the first available power.

10. The electronic circuit of claim 9, wherein:

the converter is further configured to output a third voltage and a third current to a third cluster, the third current being associated with the third voltage, and

when the first calculation value is greater than the first setting value, the second calculation value is smaller than the second setting value, and a third calculation value is smaller than a third setting value of the third cluster, the third calculation value being calculated based at least on the third voltage and the third current, the controller is further configured to output the interrupt signal based on a second sum of the first sum and the third calculation value, and a third threshold value, the third threshold value being determined based on the first available power, the second available power, and a third available power.

11. The electronic circuit of claim 10, wherein when the first calculation value is greater than the first setting value, the second calculation value is smaller than the second setting value, and the third calculation value is smaller than the third setting value, the controller is further configured to output the interrupt signal based on a comparison between the second sum and the third threshold value.

12. The electronic circuit of claim 10 or claim 11, wherein the third threshold value is a sum of the first available power, the second available power, and the third available power.

13. The electronic circuit of any one of claims 10 to 12, wherein the controller is further configured to output the interrupt signal for decreasing the level of the first voltage.

14. The electronic circuit of any one of claims 9 to 13, wherein the controller is further configured to output a control signal for controlling the converter based on a command signal received with regard to the interrupt signal.

15. An electronic circuit comprising:

a converter configured to output a first voltage to a first cluster and output a second voltage to a second cluster; and

a controller, wherein:

in a case where a first power is lower than a first available power of the first cluster and a second power is higher than a second available power of the second cluster, the first power being provided to the first cluster based on the first voltage, the second power being provided to the second cluster based on the second voltage, the controller is configured to:

output a first interrupt signal for a first control with regard to a level of the second voltage, when a first sum of the first power and the second power exceeds a second sum of the first available power and the second available power at a first time point, and

output a second interrupt signal for a second control with regard to the level of the second voltage, when the first sum decreases to a value smaller than the second sum at a second time point after the first time point.

16. The electronic circuit of claim 15, wherein the first control is associated with decreasing the level of the second voltage, and the second control is associated with stopping the first control.

17. The electronic circuit of claim 15, wherein the first control is associated with decreasing an operating frequency of the second cluster and the second control is associated with stopping the first control.

18. The electronic circuit of any one of claims 15 to 17, wherein:

the converter is further configured to output a first current and a second current, the first current being associated with the first voltage, the second current being associated with the second voltage, and

when the first power is lower than the first available power, the controller is further configured to generate the first interrupt signal and the second interrupt signal based on a third sum of a first calculation value and a second calculation value, the first calculation value being calculated based on the first voltage and the first current, the second calculation value being calculated based on the second voltage and the second current.

19. The electronic circuit of claim 18, wherein the controller is further configured to determine whether the first sum exceeds the second sum, based on the third sum.

20. The electronic circuit of claim 18 or claim 19, wherein when the second power decreases to a value that is less than the second available power, the controller is further configured to output the second interrupt signal further based on the second calculation value and the second available power.