

Report NO: 14P0A0014_I

FSP120-AAB TEST WITH BOXER-6914 Power Electronics Test Report

| | | | | |
|----------------------------|---|-------|-------|-------------|
| Summary | <input checked="" type="checkbox"/> Passed <input type="checkbox"/> Failed <input type="checkbox"/> Passed with Deviation Comment: _____ | | | |
| Test Result Summary | | | | |
| | Critical | Major | Minor | Enhancement |
| Defect Found | 0 | 0 | 0 | 0 |
| Defect Unsolved | 0 | 0 | 0 | 0 |

| | | |
|-------------------|---------------------|-----------------|
| Issue date | Approval | Test Engineer |
| 12/22/2014 | Vincent Chen | Sean Hsu |

Table of Contents

| | |
|--|---|
| 1. Project..... | 3 |
| 2. Power Manufacturer | 3 |
| 3. Team Member | 3 |
| 4. Test Equipment..... | 3 |
| 5. AC Adapter Spec..... | 3 |
| 6. Test Item..... | 4 |
| 6.1. AC Input Current..... | 4 |
| 6.2. MAX Inrush Current | 4 |
| 6.3. Input Frequency & Voltage | 4 |
| 6.4. Switching Test..... | 4 |
| 6.5. Efficiency | 4 |
| 6.6. Line Regulation..... | 4 |
| 6.7. Load Regulation | 4 |
| 6.8. Over-Voltage Protection | 4 |
| 6.9. Over-Current Protection | 4 |
| 6.10. Over-Load Protection | 4 |
| 6.11. Short Circuit Protect..... | 4 |
| 6.12. Line Voltage Surge..... | 4 |
| 6.13. Line Voltage Sag | 5 |
| 6.14. Ripple & Noise..... | 5 |
| 6.15. Setup Time | 5 |
| 6.16. Hold up Time..... | 5 |
| 6.17. Rise Time..... | 5 |
| 6.18. Turn on Overshoot | 5 |
| 6.19. Turn off Undershoot | 5 |
| 6.20. Remote ON/OFF | 5 |
| 6.21. Power Good Signal..... | 5 |
| 6.22. Power On In Low Temperature | 5 |
| 6.23. Power On In High Temperature | 5 |
| 6.24. Power Consumption Test with DC Power | 5 |
| 6.25. Power Consumption Test with AC Adapter | 5 |

1. Project

FSP120-AAB AC-DC Adapter for BOXER-6914
R0.2 (B914AM02) (12/03/2014)

2. Power Manufacturer

FSP

3. Team Member

PM : Ken Pan ; H/W : Jack Peng

4. Test Equipment

- 4.1. CPU Board : COM-CV REV.B1.0
- 4.2. Carrier Board : PER-T32 B0.2
- 4.3. CPU : INTEL , D2550 1.86GHz
- 4.4. HDD : TOSHIBA , MK1060GSC , 100GB
- 4.5. Memory : DSL , DDR3- 1066 2GB
- 4.6. LCD Monitor : CHIMEI , Model : A170E2-T08
- 4.7. USB Mouse : LOGITECH , Model : M-BT85
- 4.8. USB Keyboard : LOGITECH , Model : Y-BL49

5. AC Adapter Spec

AC Input : 100VAC~240VAC / 47Hz~63Hz

DC Output : 19Vdc Min Load : 0A ; Max Load : 6.32A / 120W

6. Test Item

| Test Item | Test Condition / Specification | | Sanction | |
|--------------------------------|---|--|----------|--------|
| | | | Measured | Result |
| 6.1. AC Input Current | I/P:115VAC | 1.7A | 1.20A | Passed |
| 6.2. MAX Inrush Current | I/P:115VAC | A | 14.7A | N/A |
| | I/P:230VAC | 220A | 18.2A | Passed |
| 6.3. Input Frequency & Voltage | I/P:90VAC/47HZ | ■ON □ OFF | - | Passed |
| | I/P:90VAC/63HZ | ■ON □ OFF | - | Passed |
| | I/P:264VAC/47HZ | ■ON □ OFF | - | Passed |
| | I/P:264VAC/63HZ | ■ON □ OFF | - | Passed |
| 6.4. Switching Test | Switching Time: 0.5 Sec MIN Load / Full Load | @90VAC ■ON □ OFF | - | Passed |
| | Switching Time: 0.5 Sec MIN Load / Full Load | @115VAC ■ON □ OFF | - | Passed |
| | Switching Time: 0.5 Sec MIN Load / Full Load | @230VAC ■ON □ OFF | - | Passed |
| | Switching Time: 0.5 Sec MIN Load / Full Load | @264VAC ■ON □ OFF | - | Passed |
| 6.5. Efficiency | I/P:90VAC FULL LOAD | @86%Min | 87.422% | Passed |
| | I/P:115VAC FULL LOAD | @86%Min | 88.986% | Passed |
| | I/P:230VAC FULL LOAD | @86%Min | 89.984% | Passed |
| | I/P:264VAC FULL LOAD | @86%Min | 89.715% | PASS |
| 6.6. Line Regulation | I/P:90VAC~264VAC | <±1% | -0.942% | Passed |
| 6.7. Load Regulation | I/P:115VAC O/P:MINLOAD~FULL LOAD | <±5% | 1.12% | Passed |
| | I/P:230VAC O/P:MINLOAD~FULL LOAD | <±5% | 1.71% | Passed |
| 6.8. Over-Voltage Protection | I/P:230VAC O/P:MIN LOAD | V1 : V (MAX) | - | N/A |
| 6.9. Over-Current Protection | O/P: 19V | A(MAX) | 8.3A | Passed |
| 6.10. Over-Load Protection | I/P:90VAC O/P:MIN LOAD | % | 131.2% | N/A |
| | I/P:115VAC O/P:MIN LOAD | % | 131.4% | N/A |
| | I/P:230VAC O/P:MIN LOAD | % | 132.5% | N/A |
| | I/P:264VAC O/P:MIN LOAD | % | 134.6% | N/A |
| 6.11. Short Circuit Protect | I/P:115VAC O/P:MIN LOAD | 19V&GND Short | - | Passed |
| | I/P:230VAC O/P:MIN LOAD | 19V&GND Short | - | Passed |
| 6.12. Line Voltage Surge | O/P: FULL LOAD | Surge voltage from 132VAC to 147VAC (0.5sec), back to 132VAC | | Passed |
| | O/P: FULL LOAD | Surge voltage from 264VAC to 293VAC (0.5sec), back to 264VAC | | Passed |

| | | | | |
|---|--|--|-----------------------|--------|
| 6.13. Line Voltage Sag | O/P: FULL LOAD | Sag voltage from 108VAC to 80VAC (0.5sec), back to 108VAC | - | Passed |
| | O/P: FULL LOAD | Sag voltage from 198VAC to 161VAC (0.5sec), back to 198VDC | - | Passed |
| 6.14. Ripple & Noise | I/P:115VAC O/P:FULL LOAD | $\leq 300\text{mv}$ | 126.9mv | Passed |
| | I/P:230VAC O/P:FULL LOAD | $\leq 300\text{mv}$ | 117.3mv | Passed |
| 6.15. Setup Time | I/P:115VAC O/P:FULL LOAD | mS(MAX) | 182ms | N/A |
| | I/P:230VAC O/P:FULL LOAD | mS(MAX) | 182ms | N/A |
| 6.16. Hold up Time | I/P:115VAC O/P:FULL LOAD | 8mS(MIN) | 33.5ms | Passed |
| | I/P:230VAC O/P:FULL LOAD | 8mS(MIN) | 83ms | Passed |
| 6.17. Rise Time | I/P:115VAC O/P:FULL LOAD | mS(MAX) | 22.60ms | N/A |
| | I/P:230VAC O/P:FULL LOAD | mS(MAX) | 11.25ms | N/A |
| 6.18. Turn on Overshoot | Turn on overshoot shall not exceed 5% over nominal voltages@ 20 % LOAD | | - | Passed |
| | Turn on overshoot shall not exceed 5% over nominal voltages@ 20 % LOAD | | - | Passed |
| 6.19. Turn off Undershoot | Turn off undershoot shall not exceed 5% over nominal voltages@ 20 % LOAD | | - | Passed |
| | Turn off undershoot shall not exceed 5% over nominal voltages@ 20 % LOAD | | - | Passed |
| 6.20. Remote ON/OFF | Simulate TTL signal to test this function | | - | - |
| 6.21. Power Good Signal | Shall go high level with a delay of 100~500ms | | - | - |
| 6.22. Power On In Low Temperature | I/P:115VAC (°C) After 2HR Power On | | - | - |
| 6.23. Power On In High Temperature | I/P:115VAC (°C)After 2HR Power On | | - | - |
| 6.24. Power Consumption Test with DC Power | No Run Prime95 | I/P:9VDC 2.45A 22.86W | | Passed |
| | Run Prime95 | I/P:9VDC 2.74A 24.66W | | Passed |
| | No Run Prime95 | I/P:30VDC 0.8A 24W | | Passed |
| | Run Prime95 | I/P:30VDC 0.9A 27W | | Passed |
| 6.25. Power Consumption Test with AC Adapter | No Run Prime95 | I/P:100VAC 0.28A 29.1W | O/P: 19V/1.26A 23.94W | Passed |
| | Run Prime95 | I/P:100VAC 0.3A 31.1W | O/P: 19V/1.36A 25.84W | Passed |
| | Sleep Mode | I/P:100VAC 0.14A 9.1W | O/P: 19V/0.3A 5.7W | Passed |
| | Off Mode | I/P:100VAC 0.08A 5.5W | O/P: 19V/0.2A 3.8W | Passed |