CLAIMS

What is claimed is:

1. A method for dynamically adjusting a frequency scalable switched mode power supply (SMPS), the method comprising:

determining a mode of operation for a load component;

determining a power requirement of the mode of operation; and

selecting a switching frequency source appropriate for a SMPS to power the mode of operation of the load component in accordance with the power requirement.

2. The method of claim 1, further comprising selecting one of a plurality of clock sources, each producing a different switching frequency signal.

3. The method of claim 2, further comprising selecting the switching frequency source in part by quality (Q) factor, wherein the plurality of clock sources comprises first and second clock sources having respective switching frequencies that are acceptable and having different Q factors.

4. The method of claim 1, further comprising selecting an appropriate switching frequency source that promotes stable operation of the SMPS.

5. The method of claim 1, further comprising determining the power requirement comprising a peak load current of the mode of operation.

6. The method of claim 1, further comprising determining the power requirement comprising an average load current of the mode of operation.

7. The method of claim 1, further comprising determining the power requirement comprising a nominal voltage or voltage range of the mode of operation.

8. The method of claim 1, further comprising determining the power requirement comprising a radio frequency sensitivity of the mode of operation.

9. The method of claim 8, further comprising selecting a switching frequency having integer multiple of that switching frequency within a band of radio frequency sensitivity.

10. The method of claim 8, further comprising selecting a switching frequency having a center frequency within a band of radio frequency sensitivity.

11. The method of claim 8, wherein the radio frequency sensitivity of the mode of the operation arises due to proximate components susceptible to electromagnetic interference.

12. The method of claim 8, further comprising determining the power requirement comprising a peak load current of the mode of operation and the radio frequency sensitivity of the mode of operation.

13. The method of claim 8, further comprising selecting a clock source that produces a switching frequency spectra attenuated at a sensitive radio frequency of the load component.

14. The method of claim 8, further comprising selecting a scaled version of a clock source.

15. The method of claim 14, further comprising selecting a scaled version of the clock source by altering a frequency of a clock source using an SMPS clock generator block.

16. The method of claim 15, further comprising altering the frequency of the clock source using an SMPS clock generator block comprising a frequency divider with programmable divider modulus.

17. The method of claim 1, further comprising:

determining a subsequent mode of operation for the load component;

determining a subsequent power requirement of the subsequent mode of operation; and

selecting another switching frequency source appropriate for the SMPS to power the subsequent mode of operation of the load component in accordance with the subsequent power requirement.

18. The method of claim 1, further comprising :

determining a simultaneous mode of operation for a second load component;

determining a second power requirement of the simultaneous mode of operation; and

selecting another switching frequency source appropriate for a second SMPS to power the simultaneous mode of operation of the second load component in accordance with the second power requirement.

19. The method of claim 18, wherein the first and second SMPS are identical.

20. The method of claim 1, further comprising determining a mode of operation for a wireless communication device.

21. The method of claim 20, further comprising determining a mode of operation comprising a modulation format.

22. The method of claim 21, further comprising determining a mode of operation of a hardware or software configuration that enables transmission or receiving a signal in a selected modulation format.

23. The method of claim 1, further comprising determining the power requirement by accessing a stored lookup data structure.

24. The method of claim 1, further comprising determining the power requirement by sensing a parameter related to power consumption by the load component.

25. The method of claim 10, further comprising determining the power requirement by sensing a parameter related to power consumption

26. The method of claim 1, further comprising selecting the switching by,

screening a set of available switching frequencies against an acceptance criterion; and

selecting one switching frequency from the set of available switching frequencies that best satisfies the acceptance criterion.

27. At least one processor for dynamically adjusting a frequency scalable switched mode power supply (SMPS), the at least one processor comprising:

a first module for determining a mode of operation for a load component;

a second module for determining a power requirement of the mode of operation; and

a third module for selecting a switching frequency source appropriate for a SMPS to power the mode of operation of the load component in accordance with the power requirement.

28. A computer program product for dynamically adjusting a frequency scalable switched mode power supply (SMPS), the computer program product comprising:

a computer-readable storage medium comprising,

a first set of codes for causing a computer to determine a mode of operation for a load component;

a second set of codes for causing the computer to determine a power requirement of the mode of operation; and

a third set of codes for causing the computer to select a switching frequency source appropriate for a SMPS to power the mode of operation of the load component in accordance with the power requirement.

29. An apparatus for dynamically adjusting a frequency scalable switched mode power supply (SMPS), the apparatus comprising:

means for determining a mode of operation for a load component;

means for determining a power requirement of the mode of operation; and

means for selecting a switching frequency source appropriate for a SMPS to power the mode of operation of the load component in accordance with the power requirement.

30. An apparatus for dynamically adjusting a frequency scalable switched mode power supply (SMPS), the apparatus comprising:

a mode detector for determining a mode of operation for a load component;

a switching frequency selector component for determining a power requirement of the mode of operation;

a switched mode power supply (SMPS) that supplies the load component; and

the switching frequency selector component for selecting a switching frequency source appropriate for the SMPS to power the mode of operation of the load component in accordance with the power requirement.

31. The apparatus of claim 30, wherein the switching frequency selector component is further for selecting a switching frequency by selecting one of a plurality of clock sources.

32. The apparatus of claim 31, wherein the switching frequency selector component is further for selecting the switching frequency source in part by quality (Q) factor, wherein the plurality of clock sources comprises first and second clock sources having respective switching frequencies that are acceptable and having different Q factors.

33. The apparatus of claim 30, wherein the switching frequency selector component is further for selecting an appropriate switching frequency source that promotes stable operation of the SMPS.

34. The apparatus of claim 30, wherein the frequency selector component is further for determining the power requirement comprising a peak load current of the mode of operation.

35. The apparatus of claim 30, wherein the switching frequency selector component is further for determining the power requirement comprising an average load current of the mode of operation.

36. The apparatus of claim 30, wherein the switching frequency selector component is further for determining the power requirement comprising a nominal voltage or voltage range of the mode of operation.

37. The apparatus of claim 30, wherein the switching frequency selector component is further for the frequency selector component for determining the power requirement comprising a radio frequency sensitivity of the mode of operation.

38. The apparatus of claim 30, wherein the switching frequency selector component is further for selecting a switching frequency having integer multiple of that switching frequency within a band of radio frequency sensitivity.

39. The apparatus of claim 37, wherein the switching frequency selector component is further for selecting a switching frequency having a center frequency within a band of radio frequency sensitivity.

40. The apparatus of claim 37, wherein the radio frequency sensitivity of the mode of the operation arises due to proximate components susceptible to electromagnetic interference.

41. The apparatus of claim 37, wherein the frequency selector component is further for determining the power requirement comprising a peak load current of the mode of operation and the radio frequency sensitivity of the mode of operation.

42. The apparatus of claim 37, further comprising the frequency selector component for selecting a clock source that produces switching frequency spectra attenuated at a sensitive radio frequency of the load component.

43. The apparatus of claim 37, further comprising the frequency selector component for selecting a scaled version of a clock source.

44. The apparatus of claim 43, wherein the switching frequency selector component is further for selecting a scaled version of the clock source by altering a frequency of a clock source using an SMPS clock generator block.

45. The apparatus of claim 43, wherein the switching frequency selector component is further for altering the frequency of the clock source using an SMPS clock generator block comprising a frequency divider with programmable divider modulus.

46. The apparatus of claim 30, wherein the mode detector is further for receiving information on a subsequent mode of operation for the load component, the frequency selector component is further for determining a subsequent power requirement of the subsequent mode of operation, and the frequency selector component is further for selecting another switching frequency source appropriate for the SMPS to power the subsequent mode of operation of the load component in accordance with the subsequent power requirement.

47. The apparatus of claim 30, further comprising:

a second mode detector for receiving information on a simultaneous mode of operation for a second load component;

a second SMPS that supplies the second load component; and

a second frequency selector component for determining a second power requirement of the simultaneous mode of operation, and for selecting another switching frequency source appropriate for the second SMPS to power the simultaneous mode of operation of the second load component in accordance with the second power requirement.

48. The apparatus of claim 47, wherein the first and second SMPS are identical.

49. The apparatus of claim 30, wherein the mode detector is further for determining a mode of operation for a wireless communication device.

50. The apparatus of claim 49, wherein the mode detector is further for determining a mode of operation comprising a modulation format.

51. The apparatus of claim 50, wherein the mode detector is further for determining a mode of operation of a hardware or software configuration that enables transmission or receiving a signal in a selected modulation format.

52. The apparatus of claim 30, wherein the switching frequency selector component is further for determining the power requirement by accessing a stored lookup data structure.

53. The apparatus of claim 30, wherein the switching frequency selector component is further for determining the power requirement by sensing a parameter related to power consumption by the load component.

54. The apparatus of claim 53, wherein the switching frequency selector component is further for determining the power requirement by sensing a parameter related to power consumption

55. The apparatus of claim 30, wherein the switching frequency selector component is further for selecting the switching by,

screening a set of available switching frequencies against an acceptance criterion; and

selecting one switching frequency from the set of available switching frequencies that best satisfies the acceptance criterion.

CLAIMS

1. A method for dynamically adjusting a frequency scalable switched mode power supply (SMPS), the method comprising:

determining a mode of operation for a load component;

determining a power requirement of the mode of operation; and

selecting a switching frequency source appropriate for a SMPS to power the mode of operation of the load component in accordance with the power requirement, further comprising determining the power requirement comprising a radio frequency sensitivity of the mode of operation.

2. The method of claim **1**, further comprising selecting a switching frequency having integer multiple of that switching frequency within a band of radio frequency sensitivity.

3. The method of claim **1**, further comprising selecting a switching frequency having a center frequency within a band of radio frequency sensitivity.

4. The method of claim **1**, wherein the radio frequency sensitivity of the mode of the operation arises due to proximate components susceptible to electromagnetic interference.

5. The method of claim **1**, further comprising determining the power requirement comprising a peak load current of the mode of operation and the radio frequency sensitivity of the mode of operation.

6. The method of claim **1**, further comprising selecting a clock source that produces a switching frequency spectra attenuated at a sensitive radio frequency of the load component.

7. The method of claim **1**, further comprising selecting a scaled version of a clock source.

8. The method of claim **7**, further comprising selecting a scaled version of the clock source by altering a frequency of a clock source using an SMPS clock generator block.

9. The method of claim **8**, further comprising altering the frequency of the clock source using an SMPS clock generator block comprising a frequency divider with programmable divider modulus.

10. An apparatus for dynamically adjusting a frequency scalable switched mode power supply (SMPS), the apparatus comprising:

a mode detector for determining a mode of operation for a load component:

a switching frequency selector component for determining a power requirement of the mode of operation:

a switched mode power supply (SMPS) that supplies the load component; and

the switching frequency selector component for selecting a switching frequency source appropriate for the SMPS to power the mode of operation of the load component in accordance with the power requirement, wherein the switching frequency selector component is further for the frequency selector component for determining the power requirement comprising a radio frequency sensitivity of the mode of operation.

11. An apparatus for dynamically adjusting a frequency scalable switched mode power supply (SMPS), the apparatus comprising:

a mode detector for determining a mode of operation for a load component;

a switching frequency selector component for determining a power requirement of the mode of operation;

a switched mode power supply (SMPS) that supplies the load component; and

the switching frequency selector component for selecting a switching frequency source appropriate for the SMPS to power the mode of operation of the load component in accordance with the power requirement, wherein the switching frequency selector component is further for selecting a switching frequency having integer multiple of that switching frequency within a band of radio frequency sensitivity.

12. The apparatus of claim **10**, wherein the switching frequency selector component is further for selecting a switching frequency having a center frequency within a band of radio frequency sensitivity.

13. The apparatus of claim **10**, wherein the radio frequency sensitivity of the mode of the operation arises due to proximate components susceptible to electromagnetic interference.

14. The apparatus of claim **10**, wherein the frequency selector component is further for determining the power requirement comprising a peak load current of the mode of operation and the radio frequency sensitivity of the mode of operation.

15. The apparatus of claim **10**, further comprising the frequency selector component for selecting a clock source that produces switching frequency spectra attenuated at a sensitive radio frequency of the load component.

16. The apparatus of claim **10**, further comprising the frequency selector component for selecting a scaled version of a clock source.

17. The apparatus of claim **16**, wherein the switching frequency selector component is further for selecting a scaled version of the clock source by altering a frequency of a clock source using an SMPS clock generator block.

18. The apparatus of claim **16**, wherein the switching frequency selector component is further for altering the frequency of the clock source using an SMPS clock generator block comprising a frequency divider with programmable divider modulus.