

Operation Environment

OS	Windows XP Professional, Windows Vista, Windows 7, Windows 8
CPU	Celeron® / Pentium4® 1GHz or faster
Memory	1 GB or more
Disk space	100 MB EMISStream system + data file space (200 MB or more recommended)
Other	Microsoft Excel 2003, 2007, 2010

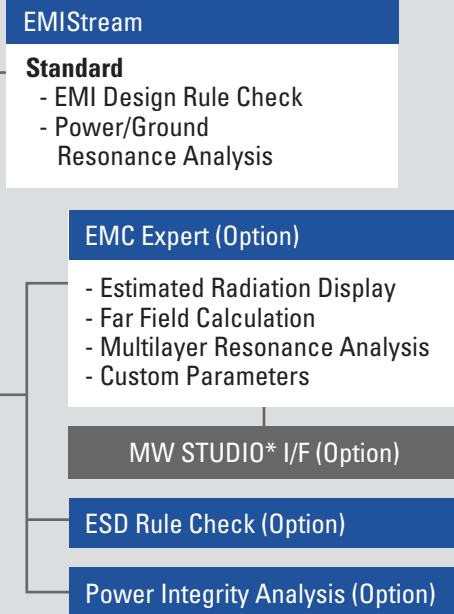
PCB Layout CAD Interfaces

Cadence Design Systems: Allegro, OrCAD Layout

Mentor Graphics: Board Station, Expedition PCB, PADS Layout

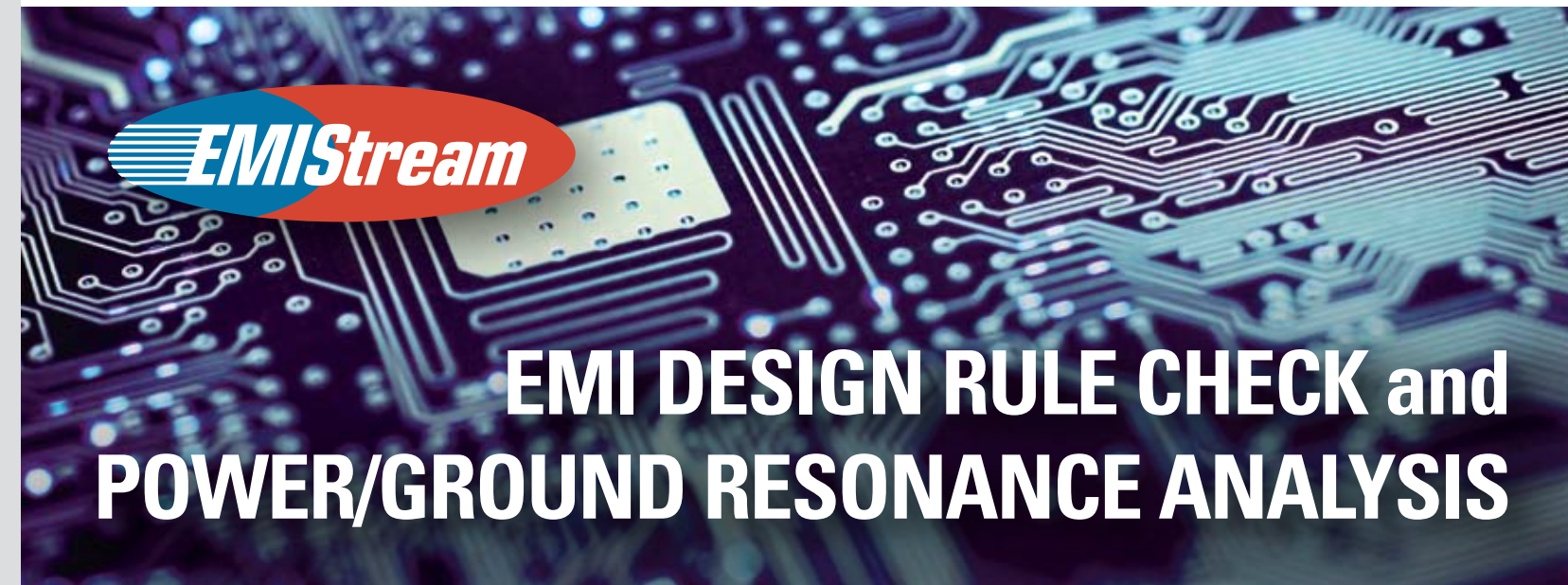
Altium: Altium Designer

Zuken: CR-5000 Board Designer



*EMC Expert Option is for professional use.

Empowered by Innovation



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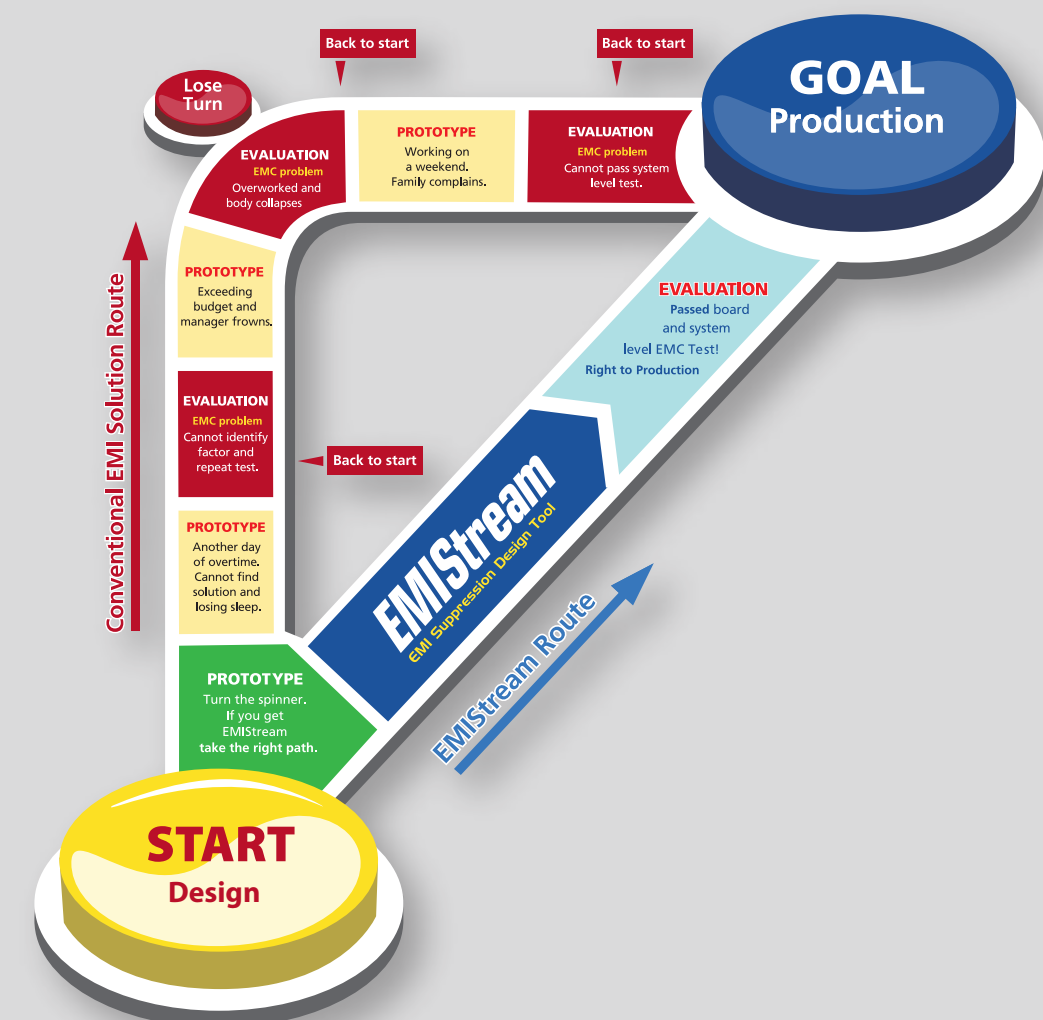
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EMISStream puts you on the road to success.

EMISStream is an EMI Design Rule Check and Power/Ground Resonance Analysis tool that can suppress undesirable EMI generated from PCB at an early design stage.

EMISStream is based on experience of EMC expert engineers worldwide seeking solutions for their real world EMI problems. As a member of a prestigious US based EMC consortium, NEC continues its research and development to enhance EMISStream.

By eliminating possible EMI issues at the initial design stage EMISStream will improve efficiency, significantly decrease time spent on evaluation process and enable rapid time-to-market.



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Reduce the Noise - Optimize Design

<http://www.nec.com/en/global/prod/emistream/>

*Reduce the Noise -
Optimize Design*

EMI Design Rule Check

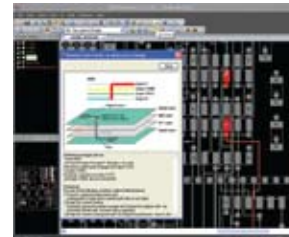
EMI Design Rule Check will point out cause of EMI problems and make suggestions on solutions. Over 150 rules were investigated based on experience, measurement, and research and were boiled down to 13 key design rules.



- (1) Trace Length
- (2) Via Count
- (3) Traces Near Plane Edge
- (4) Reference Change
- (5) Return Current Path Discontinuity
- (6) SG Trace
- (7) Estimated Radiation
- (8) SG Via Spacing
- (9) Grounding Vias Along Plane Outline
- (10) Filter
- (11) Decoupling Capacitor
- (12) Differential Signal
- (13) XTalk

EMI Check Result

Location, detailed information, and solutions on detected errors are displayed. It allows you to closely analyze the error and assess the best way to resolve the problem. You can export EMI Check result as an HTML format.



EMI Check Error Filtering Function

This function allows you to filter errors and hone in on critical problems relevant to your design. The Design Rule list will allow you to look at certain rules of your choice as well as narrow down the frequency range (of the nets). The Error Point list is organized by number of error points which also gives you the frequency range columns. You can customize the frequency and error point ranges.



Estimated Radiation Value Graph Display (Expert Option)

Frequency spectrum chart display of estimated radiated electromagnetic field. At a glance you can see the problematic frequency range. The Expert Option will allow you to set IC rise time and damping/termination resistor value for individual nets and override the global value that is set in the parameter. You can get more accurate results by putting in specific parameters for nets.



Parameter GUI

EMISStream has default threshold values for each Design Rule which you can customize. There is detailed explanation and illustration on each threshold making it easy to change the values to meet your design needs.



ESD Rule Check

EMISStream ESD Rule Check (option) will detect areas where ESD tolerance levels are low on a PCB. Check rules and threshold values are based on real world cases from companies around the globe and verified through research at NEC lab.

Signal Trace Check Group

- Traces Near Plane Edge
- Traces crossing over power and ground plane
- Signal trace over the slit of the ground/power plane
- SG Trace
- SG Via Spacing
- Power Protection

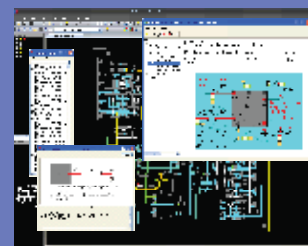
Component Placement Validity Check Group

- Input Pin Protection
- Power Pin Protection
- Critical Signal Protection

FG Pattern Check Group

- FG Pattern

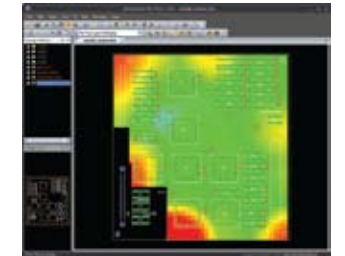
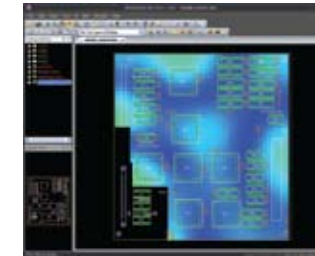
EMISStream highlights nets which violated the ESD Check rules. Details of each error and solutions will be displayed.



Power/Ground Resonance Analysis

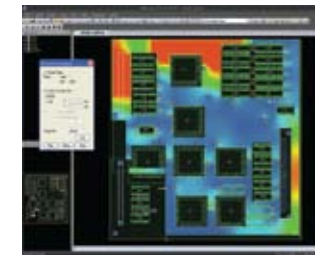


EMI increases if resonance occurs between the power/ground. The Power/Ground Resonance Analysis Function takes into account plane shapes, capacitors, and distance between the power/ground planes to analyze resonance based on the PEEC (Partial Element Equivalent Circuit) method.



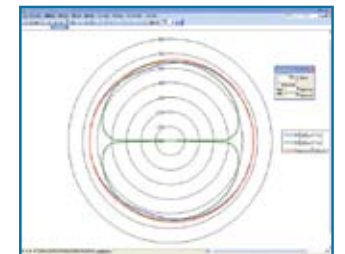
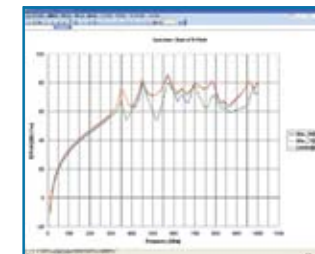
Single Pair Resonance Analysis / Multilayer Resonance Analysis (Expert Option)

You can analyze a single pair of power and ground or multiple layers at a time. In most cases, substantial amount of resonance is caused by a pair of power and ground so you can optimize capacitor quantity and placement based on the single pair analysis. Following this process, you can run Multilayer Resonance Analysis (Expert Option) to see if resonance still occurs and fine-tune capacitor quantity and placement as well as via location. By combining the usage of Single/Multilayer analysis you can significantly save time on Resonance Analysis.



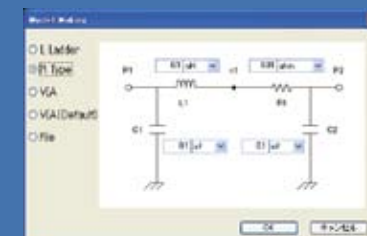
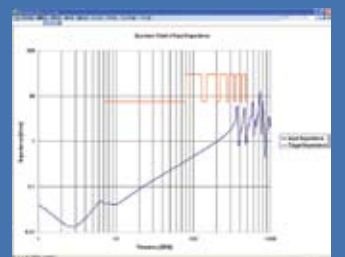
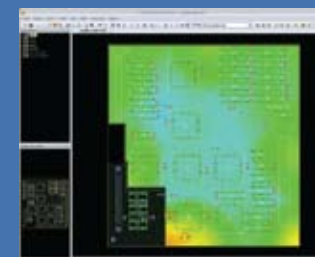
Far Field EMI Calculation (Expert Option)

Far Field EMI is calculated by plane edge voltage (one pair of ground and power). It will display far field horizontal/vertical frequency characteristics and azimuth pattern. You can adjust calculation environment such as the position of the PCB on the turn table, distance to antenna, and antenna height.



Power Integrity Analysis (PIStream)

You can add PIStream, Power Integrity Analysis Function as an option. PIStream will help you meet your target impedance by adding / moving capacitors, changing capacitance values, plane shapes and power / ground / plane distances.



IC Model Generation GUI

You can now take capacitance and inductance of the chip and package into account by using the GUI. These values affect mid-frequency resonance which is an important aspect for power integrity. By utilizing this function you can get a more accurate result in order to optimize capacitor placement, values, and numbers.