

# Computing Power Management Products

## Product Selection Guide



## DC/DC Family of Products

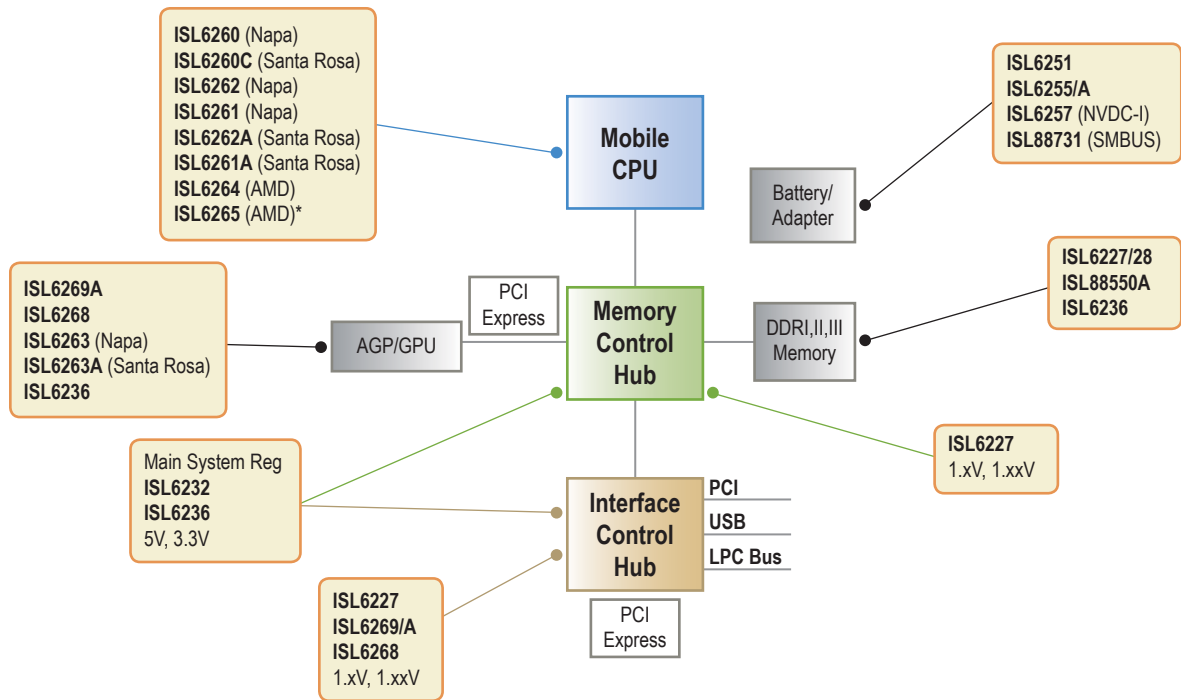
Intersil offers an extensive array of highly-efficient DC/DC conversion ICs specifically designed for desktop, server, VRM and portable applications. No matter what the application, Intersil's DC/DC family of computing power products enables the board designer to develop the most cost-effective, high-performance solution.

### This product selection guide includes:

- Single and multiphase CPU core power converters
- Multiphase controllers with integrated MOSFET drivers
- Digital multiphase: precise power
- World-class MOSFET drivers
- Peripheral power, ACPI and DDR memory and solutions
- Stand-alone and embedded graphics power converters
- Integrated FET drivers
- Portable CPU power and system power regulation

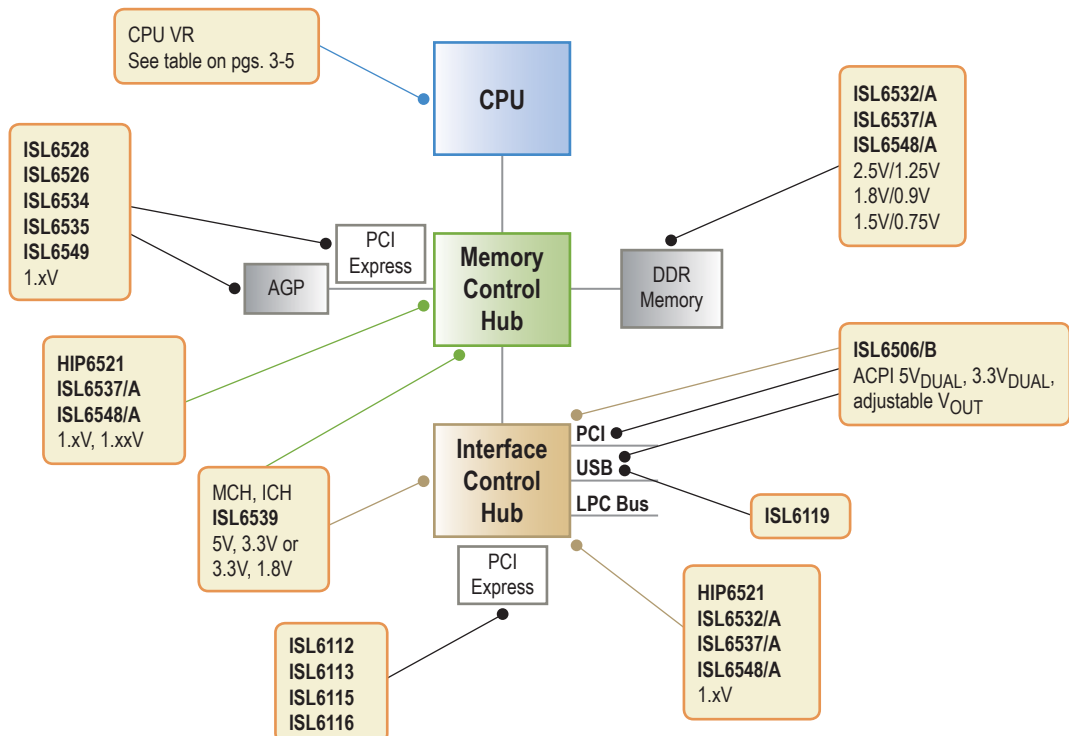


## Notebook Architecture



\*Coming Soon

## Desktop/Server Architecture



## Desktop Power

## Desktop Core Power Controllers

## VR11.1

| Part Number | Description                                                                                                         | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT</sub> (min) (V) | V <sub>OUT</sub> (max) (V) | I <sub>OUT</sub> (max) (A) | V <sub>BIAS</sub> (V) | Applications | Package |
|-------------|---------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|----------------------------|----------------------------|----------------------------|-----------------------|--------------|---------|
| ISL6336*    | 6-Phase VR11.1 PWM Controller with Differential Inductor DCR or Resistor Current Sensing with Light Load Efficiency | 3                         | 12                        | 0.375                      | 1.6                        | >200                       | 5                     | VR11.1       | QFN-48  |
| ISL6334*    | 4-Phase VR11.1 PWM Controller Capable of Precision DCR Differential Current Sensing, with Light Load Efficiency     | 3                         | 12                        | 0.375                      | 1.6                        | >130                       | 5                     | VR11.1       | QFN-40  |
| ISL6333*    | 3 Phase VR11.1 Buck PWM Controller with Integrated MOSFET Drivers with Light Load Efficiency                        | 3                         | 12                        | 0.375                      | 1.6                        | >75                        | 5                     | VR11.1       | QFN-48  |
| ISL6332*    | 2 Phase VR11.1 Buck PWM Controller with Integrated MOSFET Drivers with Light Load Efficiency                        | 3                         | 12                        | 0.375                      | 1.6                        | >50                        | 5                     | VR11.1       | QFN-36  |

## VR11

| Part Number | Description                                                                                                                                                                          | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT</sub> (min) (V) | V <sub>OUT</sub> (max) (V) | I <sub>OUT</sub> (max) (A)                 | V <sub>BIAS</sub> (V) | Applications                                                                                                                                                                                   | Package |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|----------------------------|----------------------------|--------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| ISL6327     | 6-Phase PWM Controller with 8-Bit DAC Code Capable of Precision DCR Differential Current Sensing                                                                                     | 3                         | 12                        | 0.5                        | 1.6                        | >200                                       | 5                     | VR11 Workstations, Servers                                                                                                                                                                     | QFN-48  |
| ISL6326     | 4-Phase PWM Controller with 8-Bit DAC Code Capable of Precision DCR Differential Current Sensing                                                                                     | 3                         | 12                        | 0.5                        | 1.6                        | >130                                       | 5                     | VR11 DT, Servers                                                                                                                                                                               | QFN-40  |
| ISL6326B    | 4-Phase PWM Controller with 8-Bit DAC Code Capable of Precision DCR Differential Current Sensing                                                                                     | 3                         | 12                        | 0.5                        | 1.6                        | >130                                       | 5                     | VR11 DT, Servers                                                                                                                                                                               | QFN-40  |
| ISL6322     | 4-Phase Buck PWM Controller with Integrated MOSFET Drivers and I <sup>2</sup> C Interface for Intel VR10, VR11, and AMD Applications                                                 | 3                         | 12                        | 0.375                      | 1.99375                    | >100 (4 <sup>TH</sup> FET driver external) | 5                     | Overclocking, VR10, VR11, AMD M2 6-Bit                                                                                                                                                         | QFN-48  |
| ISL6314*    | Single-Phase Buck PWM Controller with Integrated MOSFET Drivers for Intel VR10, VR11, and AMD Applications                                                                           | 5                         | 13.2                      | 0.375                      | 1.6                        | >25                                        | 5                     | VR10, VR11, and AMD M2                                                                                                                                                                         | QFN-32  |
| ISL6313*    | 2-Phase Buck PWM Controller with Integrated MOSFET Drivers for Intel VR10, VR11, and AMD Applications                                                                                | 5                         | 13.2                      | 0.375                      | 1.6                        | >50                                        | 5                     | VR10, VR11, and AMD M2                                                                                                                                                                         | QFN-36  |
| ISL6312     | 4-Phase Buck PWM Controller with Integrated MOSFET Drivers for Intel VR10, VR11, and AMD Applications                                                                                | 3                         | 12                        | 0.375                      | 1.6                        | >100 (4 <sup>TH</sup> FET driver external) | 5                     | VR10, VR11, AMD M2 6-Bit                                                                                                                                                                       | QFN-48  |
| ISL6312A    | 4-Phase Buck PWM Controller with I <sub>OUT</sub> Feature and Integrated MOSFET Drivers for Intel VR10, VR11, and AMD Applications                                                   | 5                         | 13.2                      | 0.375                      | 1.6                        | 120                                        | 5                     | Intel VR11/AMD M2 CPU core regulators, low-output-voltage, high-current power supplies, high-current POL modules, high-current embedded voltage regulators, high-current FPGA DC/DC converters | QFN-48  |
| ISL6307     | 6-Phase PWM Controller with 8-Bit VID Code Capable of Precision r <sub>DS(ON)</sub> or DCR Differential Current                                                                      | 3                         | 12                        | 0.5                        | 1.6                        | >200                                       | 5                     | VR11                                                                                                                                                                                           | QFN-48  |
| ISL6307A    | Ultra-High Bandwidth 6-Phase PWM Controller with 8-Bit VID Code Capable of Precision r <sub>DS(ON)</sub> or DCR Differential Current Sensing                                         | 3                         | 12                        | 0.5                        | 1.6                        | >200                                       | 5                     | VR11                                                                                                                                                                                           | QFN-48  |
| ISL6307B    | 6-Phase VR11 PWM Controller with 8-Bit VID Code Capable of Precision r <sub>DS(ON)</sub> or DCR Differential Current Sensing for Applications Where Supply Voltage is Higher than 5V | 3                         | 12                        | 0.5                        | 1.6                        | >200                                       | 12                    | VR11                                                                                                                                                                                           | QFN-48  |
| ISL6306     | 4-Phase PWM Controller with 8-Bit DAC Code Capable of Precision r <sub>DS(ON)</sub> or DCR Differential Current Sensing                                                              | 3                         | 12                        | 0.5                        | 1.6                        | >130                                       | 5                     | VR11                                                                                                                                                                                           | QFN-40  |

\*Coming Soon

## Desktop Power

### VRM10/10.1/10.2

| Part Number | Description                                                                                                                                           | V <sub>IN</sub><br>(min)<br>(V) | V <sub>IN</sub><br>(max)<br>(V) | V <sub>OUT</sub><br>(min)<br>(V) | V <sub>OUT</sub><br>(max)<br>(V) | I <sub>OUT</sub><br>(max)<br>(A)           | V <sub>BIAS</sub><br>(V) | Applications                                        | Package                   |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|--------------------------------------------|--------------------------|-----------------------------------------------------|---------------------------|
| ISL6568     | 2-Phase Buck PWM Controller with Integrated MOSFET Drivers for VRM9, VRM10, and AMD Hammer Applications                                               | 3                               | 12                              | 0.8375                           | 1.6                              | >60                                        | 5                        | VR9, VR10, AMD Hammer                               | QFN-32                    |
| ISL6566     | 3-Phase Buck PWM Controller with Integrated MOSFET Drivers for VRM9, VRM10, and AMD Hammer Applications                                               | 3                               | 12                              | 0.8375                           | 1.6                              | >100                                       | 5                        | VR9, VR10, AMD Hammer                               | QFN-40                    |
| ISL6566A    | 3-Phase Buck PWM Controller with Two Integrated MOSFET Drivers and One External Driver Signal                                                         | 3                               | 12                              | 0.8375                           | 1.6                              | >100 (3 <sup>RD</sup> FET driver external) | 5                        | VR9, VR10, AMD Hammer                               | QFN-40                    |
| ISL6565A    | Multiphase PWM Controller with Precision r <sub>DS(ON)</sub> or DCR Current Sensing for VR10.X Application                                            | 3                               | 12                              | 0.8375                           | 1.6                              | >90                                        | 5, 12                    | VR10                                                | QFN-28, SOIC-28, TSSOP-28 |
| ISL6565B    | Multiphase PWM Controller with Precision r <sub>DS(ON)</sub> or DCR Current Sensing for VR10.X Application                                            | 3                               | 12                              | 0.8375                           | 1.6                              | >90                                        | 5, 12                    | VR10                                                | QFN-28, SOIC-28, TSSOP-28 |
| ISL6563     | 2-Phase Multiphase Buck PWM Controller with Integrated MOSFET Drivers                                                                                 | 5                               | 12                              | 0.8                              | 1.85                             | >60                                        | 5                        | VR9, VR10, AMD Hammer (Athlon 64, Opteron, Sempron) | QFN-24                    |
| ISL6561     | Multiphase PWM Controller with Precision r <sub>DS(ON)</sub> or DCR Current Sensing                                                                   | 3                               | 12                              | 0.8375                           | 1.65                             | >120                                       | 5, 12                    | VR10                                                | QFN-40                    |
| ISL6556A    | Optimized Multiphase Controller with 6-Bit DAC for VR10.X Applications                                                                                | 3                               | 12                              | 0.8375                           | 1.6                              | >120                                       | 5, 12                    | VR10                                                | SOIC-28, QFN-32           |
| ISL6556B    | Optimized Multiphase PWM Controller with 6-Bit DAC and Programmable Internal Temperature Compensation for VR10.X Application                          | 3                               | 12                              | 0.8375                           | 1.6                              | >120                                       | 5, 12                    | VR10                                                | SOIC-28, QFN-32           |
| ISL6316     | Enhanced 4-Phase PWM Controller with 6-Bit VID Code Capable of Precision r <sub>DS(ON)</sub> or DCR Differential Current Sensing for VR10 Application | 3                               | 12                              | 0.8375                           | 1.65                             | >130                                       | 5                        | VR10X                                               | QFN-40                    |

### VRM9.0/9.1

| Part Number | Description                                                                                             | V <sub>IN</sub><br>(min)<br>(V) | V <sub>IN</sub><br>(max)<br>(V) | V <sub>OUT</sub><br>(min)<br>(V) | V <sub>OUT</sub><br>(max)<br>(V) | I <sub>OUT</sub><br>(max)<br>(A)           | V <sub>BIAS</sub><br>(V) | Applications                                        | Package |
|-------------|---------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|--------------------------------------------|--------------------------|-----------------------------------------------------|---------|
| ISL6568     | 2-Phase Buck PWM Controller with Integrated MOSFET Drivers for VRM9, VRM10, and AMD Hammer Applications | 3                               | 12                              | 0.8375                           | 1.6                              | >60                                        | 5                        | VR9, VR10, AMD Hammer                               | QFN-32  |
| ISL6566     | 3-Phase Buck PWM Controller with Integrated MOSFET Drivers for VRM9, VRM10, and AMD Hammer Applications | 3                               | 12                              | 0.8375                           | 1.6                              | >100                                       | 5                        | VR9, VR10, AMD Hammer                               | QFN-40  |
| ISL6566A    | 3-Phase Buck PWM Controller with Two Integrated MOSFET Drivers and One External Driver Signal           | 3                               | 12                              | 0.8375                           | 1.6                              | >100 (3 <sup>RD</sup> FET driver external) | 5                        | VR9, VR10, AMD Hammer                               | QFN-40  |
| ISL6563     | 2-Phase Multiphase Buck PWM Controller with Integrated MOSFET Drivers                                   | 5                               | 12                              | 0.8                              | 1.85                             | >60                                        | 5                        | VR9, VR10, AMD Hammer (Athlon 64, Opteron, Sempron) | QFN-24  |
| ISL6560     | Microprocessor CORE Voltage Regulator 2-Phase Buck PWM Controller                                       | 3                               | 12                              | 1.1                              | 1.85                             | >60                                        | 5                        | VR9                                                 | SOIC-16 |
| HIP6311     | Microprocessor CORE Voltage Regulator Multiphase Buck PWM Controller                                    | 3                               | 12                              | 1.1                              | 1.85                             | >120                                       | 5                        | VR9                                                 | SOIC-20 |
| HIP6311A    | Microprocessor CORE Voltage Regulator Multiphase Buck PWM Controller                                    | 3                               | 12                              | 1.1                              | 1.85                             | >120                                       | 5                        | VR9                                                 | SOIC-20 |
| HIP6302     | Microprocessor CORE Voltage Regulator Multiphase Buck PWM Controller                                    | 3                               | 12                              | 1.1                              | 1.85                             | >60                                        | 5                        | VR9                                                 | SOIC-16 |
| HIP6302V    | Microprocessor CORE Voltage Regulator Multiphase Buck PWM Controller                                    | 3                               | 12                              | 1.1                              | 1.85                             | >60                                        | 5                        | VR9                                                 | SOIC-16 |
| HIP6301     | Microprocessor CORE Voltage Regulator Multiphase Buck PWM Controller                                    | 3                               | 12                              | 1.1                              | 1.85                             | >120                                       | 5                        | VR9                                                 | SOIC-20 |
| HIP6301V    | Microprocessor CORE Voltage Regulator Multiphase Buck PWM Controller                                    | 3                               | 12                              | 1.1                              | 1.85                             | >120                                       | 5                        | VR9                                                 | SOIC-20 |

## Desktop/Server Power

## Desktop Core Power Controllers continued

## VRM8.5

| Part Number | Description                                                             | V <sub>IN</sub><br>(min)<br>(V) | V <sub>IN</sub><br>(max)<br>(V) | V <sub>OUT</sub><br>(min)<br>(V) | V <sub>OUT</sub><br>(max)<br>(V) | I <sub>OUT</sub><br>(max)<br>(A) | V <sub>BIAS</sub><br>(V) | Applications | Package            |
|-------------|-------------------------------------------------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|--------------------------|--------------|--------------------|
| ISL6553     | Microprocessor CORE Voltage Regulator<br>2-Phase Buck PWM Controller    | 3                               | 12                              | 1.05                             | 1.825                            | >60                              | 5                        | VR8.5        | SOIC-16            |
| ISL6552     | Microprocessor CORE Voltage Regulator<br>Multiphase Buck PWM Controller | 3                               | 12                              | 1.05                             | 1.825                            | >120                             | 5                        | VR8.5        | QFN-20,<br>SOIC-20 |

## VRM8.4

| Part Number | Description                                                             | V <sub>IN</sub><br>(min)<br>(V) | V <sub>IN</sub><br>(max)<br>(V) | V <sub>OUT</sub><br>(min)<br>(V) | V <sub>OUT</sub><br>(max)<br>(V) | I <sub>OUT</sub><br>(max)<br>(A) | V <sub>BIAS</sub><br>(V) | Applications | Package |
|-------------|-------------------------------------------------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|--------------------------|--------------|---------|
| HIP6303     | Microprocessor CORE Voltage Regulator<br>Multiphase Buck PWM Controller | 3                               | 12                              | 1.3                              | 2.05                             | >120                             | 5                        | VR8.4        | SOIC-20 |

## No - VID

| Part Number | Description                                                                                   | V <sub>IN</sub><br>(min)<br>(V) | V <sub>IN</sub><br>(max)<br>(V) | V <sub>OUT</sub><br>(min)<br>(V) | V <sub>OUT</sub><br>(max)<br>(V) | I <sub>OUT</sub><br>(max)<br>(A) | V <sub>BIAS</sub><br>(V) | VRM | Package            |
|-------------|-----------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|--------------------------|-----|--------------------|
| ISL6558     | Multi-Purpose Precision Multiphase PWM Controller<br>with Optional Active Voltage Positioning | 1.2                             | 12                              | 0.8                              | 5                                | >120                             | 5                        | N/A | SOIC-16,<br>QFN-20 |

## Server Core Power Controllers

## Itanium IA-64

| Part Number | Description                                                                                                                        | V <sub>IN</sub><br>(min)<br>(V) | V <sub>IN</sub><br>(max)<br>(V) | V <sub>OUT</sub><br>(min)<br>(V) | V <sub>OUT</sub><br>(max)<br>(V) | I <sub>OUT</sub><br>(max)<br>(A) | V <sub>BIAS</sub><br>(V) | Applications | Package |
|-------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|--------------------------|--------------|---------|
| ISL6564A    | Multiphase PWM Controller with Linear 6-Bit<br>DAC Capable of Precision r <sub>DS(ON)</sub> or DCR<br>Differential Current Sensing | 3                               | 12                              | 0.525                            | 1.3                              | ≥ 120                            | 5, 12                    | Montecito    | QFN-40  |
| ISL6554     | Microprocessor CORE Voltage Regulator<br>2- to 4-Phase Buck PWM Controller                                                         | 3                               | 12                              | 0.95                             | 1.7                              | ≥ 60                             | 5                        | VR8.5        | SOIC-20 |

## Digital Multiphase

| Part Number | Description                                                                                                          | V <sub>IN</sub><br>(min)<br>(V) | V <sub>IN</sub><br>(max)<br>(V) | V <sub>OUT</sub><br>(min)<br>(V)                                   | V <sub>OUT</sub><br>(max)<br>(V)                                   | I <sub>OUT</sub><br>(max)<br>(A)             | Switching<br>Frequency<br>(kHz)             | V <sub>BIAS</sub><br>(V)                  | Application            | Package           |
|-------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------|---------------------------------------------|-------------------------------------------|------------------------|-------------------|
| ISL6595     | 6-Phase Digital Multiphase Controller with<br>I <sup>2</sup> C Interface                                             | 13.2                            | 8                               | 0.5                                                                | 1.6                                                                | up to 180                                    | 100 to 1500                                 | 3.3                                       | VR11                   | QFN-48            |
| Part Number | Description                                                                                                          | V <sub>IN</sub><br>(max)<br>(V) | V <sub>DRIVE</sub><br>(V)       | Output<br>Per Driver<br>I <sub>L</sub> GATE<br>Source/<br>Sink (A) | Output<br>Per Driver<br>I <sub>L</sub> GATE<br>Source/<br>Sink (A) | Phase<br>V <sub>PHASE</sub><br>(min)<br>(V)  | Phase<br>V <sub>PHASE</sub><br>(max)<br>(V) | No<br>Load I <sub>S</sub><br>(mA)<br>(mA) | I <sub>q</sub><br>(mA) | Package           |
| ISL6594A    | Advanced Synchronous Buck MOSFET<br>Driver with 3V PWM Interface and Advanced<br>Protection Features                 | 13.2                            | 5 or 12                         | 1.25/2                                                             | 2/3                                                                | GND-0.3V <sub>DC</sub><br>GND-8V<br>(<400ns) | 15V <sub>DC</sub> , 30V<br>(<200ns)         | 2.5                                       | 4.5                    | DFN-10,<br>SOIC-8 |
| ISL6594B    | Advanced Synchronous Buck MOSFET<br>Driver with 3V PWM Interface and Advanced<br>Protection Features                 | 13.2                            | 5 or 12                         | 1.25/2                                                             | 2/3                                                                | GND-0.3V <sub>DC</sub><br>GND-8V<br>(<400ns) | 15V <sub>DC</sub> , 30V<br>(<200ns)         | 2.5                                       | 4.5                    | DFN-10,<br>SOIC-8 |
| ISL6594D    | Advanced Synchronous Buck MOSFET<br>Driver with 3V PWM Interface and Advanced<br>Protection Features, IBA Compatible | 13.2                            | 12                              | 1.25/2                                                             | 2/3                                                                | GND-0.3V <sub>DC</sub><br>GND-8V<br>(<400ns) | 15V <sub>DC</sub> , 30V<br>(<200ns)         | N/A                                       | 12                     | DFN-10,<br>SOIC-8 |

## Notebook Power

### Notebook Core Power Controllers

#### IMVP-VI (Centrino Duo Core Based CPUs)

| Part Number | Description                                                                                                  | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT</sub> (min) (V) | V <sub>OUT</sub> (max) (V) | I <sub>OUT</sub> (max) (A) | V <sub>BIAS</sub> (V) | Applications                                     | Package |
|-------------|--------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|----------------------------|----------------------------|----------------------------|-----------------------|--------------------------------------------------|---------|
| ISL6262     | 2-Phase PWM Controller with 7-Bit DAC Code Capable of Lossless DCR Sensing or Resistive Current Sensing      | 5                         | 25                        | 0.3                        | 1.5                        | 25/phase                   | 5                     | IMVP-VI (Napa platform, Centrino Duo CPUs)       | QFN-48  |
| ISL6262A    | 2-Phase PWM Controller with 7-Bit DAC Code Capable of Lossless DCR Sensing or Resistive Current Sensing      | 5                         | 25                        | 0.3                        | 1.5                        | 25/phase                   | 5                     | IMVP-VI (Santa Rosa platform, Centrino Duo CPUs) | QFN-48  |
| ISL6261     | Single-Phase PWM Controller with 7-Bit DAC Code Capable of Lossless DCR Sensing or Resistive Current Sensing | 5                         | 25                        | 0.3                        | 1.5                        | 25/phase                   | 5                     | IMVP-VI (Napa platform, Centrino Duo CPUs)       | QFN-40  |
| ISL6261A    | Single-Phase PWM Controller with 7-Bit DAC Code Capable of Lossless DCR Sensing or Resistive Current Sensing | 5                         | 25                        | 0.3                        | 1.5                        | 25/phase                   | 5                     | IMVP-VI (Santa Rosa platform, Centrino Duo CPUs) | QFN-40  |
| ISL6260     | 3-Phase PWM Controller with 7-Bit DAC Code Capable of Lossless DCR Sensing or Resistive Current Sensing      | 5                         | 25                        | 0.3                        | 1.5                        | 25/phase                   | 5                     | IMVP-VI (Napa platform, Centrino Duo CPUs)       | QFN-40  |
| ISL6260C    | 3-Phase PWM Controller with 7-Bit DAC Code Capable of Lossless DCR Sensing or Resistive Current Sensing      | 5                         | 25                        | 0.3                        | 1.5                        | 25/phase                   | 5                     | IMVP-VI (Santa Rosa platform, Centrino Duo CPUs) | QFN-40  |

#### IMVP-IV (Centrino Based CPUs)

| Part Number | Description                                                                                                          | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT</sub> (min) (V) | V <sub>OUT</sub> (max) (V) | I <sub>OUT</sub> (max) (A) | V <sub>BIAS</sub> (V) | Applications       | Package          |
|-------------|----------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|----------------------------|----------------------------|----------------------------|-----------------------|--------------------|------------------|
| ISL6218     | Single-Phase PWM Controller with 6-Bit VID Code Capable of Precision r <sub>DS(ON)</sub> or DCR Differential Current | 5                         | 25                        | 0.7                        | 1.708                      | 20/phase                   | 5                     | IMVP-IV & IMVP-IV+ | TSSOP-38, QFN-28 |
| ISL6217A    | 2-Phase PWM Controller with 6-Bit DAC Code Capable of Precision r <sub>DS(ON)</sub> or Resistive Current Sensing     | 5                         | 25                        | 0.7                        | 1.708                      | 20/phase                   | 5                     | IMVP-IV & IMVP-IV+ | TSSOP-38         |

#### AMD Turion Controllers

| Part Number | Description                                                           | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT</sub> (min) (V) | V <sub>OUT</sub> (max) (V) | I <sub>OUT</sub> (max) (A) | V <sub>BIAS</sub> (V) | Applications                  | Package |
|-------------|-----------------------------------------------------------------------|---------------------------|---------------------------|----------------------------|----------------------------|----------------------------|-----------------------|-------------------------------|---------|
| ISL6265*    | AMD Next-Generation Multi-Output Regulator                            | 5                         | 25                        | 0.375                      | 1.55                       | 20/phase                   | 5                     | AMD next-generation processor | QFN-48  |
| ISL6264     | Two-Phase PWM Controller with 6-Bit DAC Code with DCR Current Sensing | 5                         | 25                        | 0.375                      | 1.55                       | 25/phase                   | 5                     | AMD Mobile Turion             | QFN-40  |

### Power MOSFET Drivers - Synchronous Buck

| Part Number | Description                                                                     | V <sub>IN</sub> (max) (V) | V <sub>DRIVE</sub> (V) | Output Per Driver I <sub>UGATE</sub> Source/ Sink (A) | Output Per Driver I <sub>L</sub> GATE Source/ Sink (A) | Phase V <sub>PHASE</sub> (min) (V)        | Phase V <sub>PHASE</sub> (max) (V) | No Load I <sub>S</sub> (max) (mA) | I <sub>q</sub> (mA) | Package                 |
|-------------|---------------------------------------------------------------------------------|---------------------------|------------------------|-------------------------------------------------------|--------------------------------------------------------|-------------------------------------------|------------------------------------|-----------------------------------|---------------------|-------------------------|
| ISL6614     | Dual Advanced Synchronous Rectified Buck MOSFET Driver with Protection Features | 13.2                      | 5 to 12                | 1.25/2                                                | 2/3                                                    | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | 4.5                               | 16                  | SOIC-14, QFN-16         |
| ISL6614A    | Dual Advanced Synchronous Rectified Buck MOSFET Driver with Pre-POR OVP         | 13.2                      | 5 to 12                | 1.25/2                                                | 2/3                                                    | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | 4.5                               | 16                  | SOIC-14, QFN-16         |
| ISL6614B    | Dual Advanced Synchronous Rectified Buck MOSFET Driver with Protection Features | 13.2                      | 5 to 12                | 1.25/2                                                | 2/3                                                    | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | 4.5                               | 16                  | SOIC-14, QFN-16         |
| ISL6613A    | Advanced Synchronous Rectified Buck MOSFET Driver with Pre-POR OVP              | 15                        | 5 to 12                | 1.25/2                                                | 2/3                                                    | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | 4.5                               | 5                   | DFN-10, EPSON-8, SOIC-8 |
| ISL6613B    | Advanced Synchronous Rectified Buck MOSFET Drivers with Pre-POR OVP             | 15                        | 5 to 12                | 1.25/2                                                | 2/3                                                    | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | 4.5                               | 8                   | DFN-10, EPSON-8, SOIC-8 |
| ISL6612A    | Advanced Synchronous Rectified Buck MOSFET Driver with Pre-POR OVP              | 15                        | 5 to 12                | 1.25/2                                                | 2/3                                                    | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | 4.5                               | 5                   | DFN-10, EPSON-8, SOIC-8 |
| ISL6612B    | Advanced Synchronous Rectified Buck MOSFET Driver with Pre-POR OVP              | 15                        | 5 to 12                | 1.25/2                                                | 2/3                                                    | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | 4.5                               | 8                   | DFN-10, EPSON-8, SOIC-8 |

\*Coming Soon

## Power MOSFET Drivers

## Power MOSFET Drivers - Synchronous Buck

| Part Number | Description                                                                                                    | V <sub>IN</sub> (max) (V) | V <sub>DRIVE</sub> (V) | Output Per Driver I <sub>UGATE</sub> Source/Sink (A) | Output Per Driver I <sub>L</sub> GATE Source/Sink (A) | Phase V <sub>PHASE</sub> (min) (V)        | Phase V <sub>PHASE</sub> (max) (V) | No Load I <sub>S</sub> (max) (mA) | I <sub>Q</sub> (mA) | Package         |
|-------------|----------------------------------------------------------------------------------------------------------------|---------------------------|------------------------|------------------------------------------------------|-------------------------------------------------------|-------------------------------------------|------------------------------------|-----------------------------------|---------------------|-----------------|
| ISL6610     | Dual Synchronous Rectified MOSFET Driver                                                                       | 22                        | 5                      | 2/2                                                  | 2/4                                                   | -8                                        | 30                                 | 1.6 (typ)                         | 240A (typ)          | SOIC-14, QFN-16 |
| ISL6610A    | Dual Synchronous Rectified MOSFET Driver                                                                       | 15                        | 5                      | 2/2                                                  | 2/4                                                   | -8                                        | 30                                 | 1.6 (typ)                         | 240A (typ)          | SOIC-14, QFN-16 |
| ISL6609     | Synchronous Rectified MOSFET Driver                                                                            | 15                        | 5.5                    | 2/2                                                  | 2/4                                                   | -8V (<20ns)                               | 15V <sub>DC</sub> , 30V (<100ns)   | 0.132                             | 0.132               | QFN-8, SOIC-8   |
| ISL6609A    | Synchronous Rectified MOSFET Driver                                                                            | 15                        | 5.5                    | 2/2                                                  | 2/4                                                   | GND-0.3V <sub>DC</sub><br>GND-8V (<20ns)  | 15V <sub>DC</sub> , 30V (<100ns)   | 0.132                             | 0.132               | QFN-8, SOIC-8   |
| ISL6608     | Synchronous Rectified MOSFET Driver                                                                            | 17                        | 5                      | 2/2                                                  | 2/4                                                   | V <sub>BOOT</sub> -7                      | 22                                 |                                   | 0.008               | QFN-8, SOIC-8   |
| ISL6605     | Synchronous Rectified MOSFET Driver                                                                            | 17                        | 5                      | 2/2                                                  | 2/4                                                   | V <sub>BOOT</sub> -7                      | 22                                 |                                   | 0.002               | QFN-8, SOIC-8   |
| ISL6596     | Synchronous Rectified MOSFET Driver                                                                            | 15                        | 5 or 12                | 2/2                                                  | 2/4                                                   | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | 2.5                               | 4.5                 | QFN-10, SOIC-8  |
| ISL6594A    | Advanced Synchronous Buck MOSFET Driver with 3V PWM Interface and Advanced Protection Features                 | 13.2                      | 5 or 12                | 1.25/2                                               | 2/3                                                   | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | 2.5                               | 4.5                 | DFN-10, SOIC-8  |
| ISL6594B    | Advanced Synchronous Buck MOSFET Driver with 3V PWM Interface and Advanced Protection Features                 | 13.2                      | 5 or 12                | 1.25/2                                               | 2/3                                                   | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | 2.5                               | 4.5                 | DFN-10, SOIC-8  |
| ISL6594D    | Advanced Synchronous Buck MOSFET Driver with 3V PWM Interface and Advanced Protection Features, IBA Compatible | 13.2                      | 12                     | 1.25/2                                               | 2/3                                                   | GND-0.3V <sub>DC</sub><br>GND-8V (<400ns) | 15V <sub>DC</sub> , 30V (<200ns)   | N/A                               | 12                  | DFN-10, SOIC-8  |
| ISL6210     | Dual Synchronous Rectified MOSFET Driver                                                                       | 25                        | 5                      | 2/2                                                  | 2/4                                                   | V <sub>BOOT</sub> -7                      | 30                                 |                                   | 0.17                | QFN-16          |
| ISL6209     | High Voltage Synchronous Rectified Buck MOSFET Driver with Programmable Deadtime                               | 25                        | 5                      | 1/2                                                  | 2/4                                                   | V <sub>BOOT</sub> -7                      | 30                                 |                                   | 0.085               | QFN-8, SOIC-8   |
| ISL6208     | High Voltage Synchronous Rectified Buck MOSFET Driver                                                          | 25                        | 5                      | 2/2                                                  | 2/4                                                   | V <sub>BOOT</sub> -7                      | 30                                 |                                   | 0.08                | QFN-8, SOIC-8   |
| ISL6208A    | High Voltage Synchronous Rectified Buck MOSFET Driver with Programmable Deadtime                               | 25                        | 5                      | 2/2                                                  | 2/4                                                   | V <sub>BOOT</sub> -7                      | 30                                 |                                   | 0.01                | QFN-8, SOIC-8   |
| ISL6207     | High Voltage Synchronous Rectified Buck MOSFET Driver                                                          | 25                        | 5                      | 2/2                                                  | 2/4                                                   | V <sub>BOOT</sub> -7                      | 30                                 |                                   |                     | QFN-8, SOIC-8   |
| HIP6604B    | Synchronous Rectified Buck MOSFET Driver                                                                       | 12                        | 5 or 12                |                                                      | 0.7                                                   | -5                                        | 15                                 | 9.8                               |                     | QFN-16          |
| HIP6603B    | Synchronous Rectified Buck MOSFET Driver                                                                       | 12                        | 5 or 12                |                                                      | 0.7                                                   | -5                                        | 15                                 | 7                                 |                     | EPSON-8, SOIC-8 |
| HIP6602B    | Dual-Channel Synchronous Rectified Buck MOSFET Driver                                                          | 12                        | 5 or 12                |                                                      | 0.7                                                   | -5                                        | 15                                 | 9                                 |                     | SOIC-14, QFN-16 |
| HIP6601B    | Synchronous Rectified Buck MOSFET Driver                                                                       | 12                        | 5 or 12                |                                                      | 0.7                                                   | -5                                        | 15                                 | 6.6                               |                     | EPSON-8, SOIC-8 |

## Multiple Output

## Dual Switchers/DDR

| Part Number | Description                                                                                               | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT</sub> (min) (V) | V <sub>OUT</sub> (max) (V) | I <sub>OUT</sub> (max) (A) | Switching Frequency (kHz) | Package         |
|-------------|-----------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|----------------------------|----------------------------|----------------------------|---------------------------|-----------------|
| ISL8112     | High Light-Load Efficiency, Dual-Output, Main Power Supply Controller                                     | 5.5                       | 25                        | 0.7                        | 5.5                        | 30                         | 400/500, 300/400, 200/300 | QFN-32          |
| ISL6539     | Wide Input Range Dual PWM Controller with DDR Option                                                      | 3.3                       | 18                        | 0.9                        | 5.5                        | 8                          | 300                       | QSOP-28         |
| ISL6531     | Dual 5V Synchronous Buck PWM Controller for DDRAM Memory V <sub>DDQ</sub> and V <sub>TT</sub> Termination | 5                         | 5                         | 0.8                        | 5                          | 20                         | 300                       | SOIC-24, QFN-32 |
| ISL6530     | Dual 5V Synchronous Buck PWM Controller for DDRAM Memory V <sub>DDQ</sub> and V <sub>TT</sub> Termination | 5                         | 5                         | 0.8                        | 5                          | 1                          | 300                       | SOIC-24, QFN-32 |
| ISL6445     | 1.4MHz Dual, 180° Out-of-Phase, Step-Down PWM Controller                                                  | 4.5                       | 24                        | 0.8                        | 5.5                        | 10                         | 1400                      | QSOP-24         |
| ISL6440     | 300kHz Dual, 180° Out-of-Phase, Step-Down PWM Controller                                                  | 4.5                       | 24                        | 0.8                        | 24                         | 10                         | 300                       | QSOP-24         |
| ISL6227     | Dual Mobile-Friendly PWM Controller with DDR Option                                                       | 3.3                       | 24                        | 0.9                        | 5.5                        | 16                         | 300                       | QFN-28, QSOP-28 |
| ISL6228*    | High Performance Dual-Output Buck Controller for Notebook Applications                                    | 3.3                       | 25                        | 0.6                        | 5                          | 30                         | 200-600                   | QFN-28          |

\*Coming Soon

## Switching Regulation

### Multiple Output continued

#### 2-in-1 PWM Switcher + Linear/DDR

| Part Number | Description                                                                                         | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT1</sub> (min) (V) | V <sub>OUT1</sub> (max) (V) | V <sub>OUT2</sub> (V)    | I <sub>OUT1</sub> (A)   | I <sub>OUT2</sub> (A)   | V <sub>BIAS</sub> (V) | Package                  |
|-------------|-----------------------------------------------------------------------------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|--------------------------|-------------------------|-------------------------|-----------------------|--------------------------|
| ISL88550A   | Synchronous Step-Down Controller with Sourcing and Sinking LDO Regulator                            | 2                         | 25                        | 0.7                         | 3.5                         | 0.7 to 3.5               | 15                      | +2.5/-2                 | 5                     | QFN-28                   |
| ISL6549     | Single 12V Input Supply Dual Regulator - Synchronous Rectified Buck PWM and Linear Power Controller | 1                         | 12                        | 0.8                         | V <sub>IN</sub>             | 0.8 to V <sub>IN</sub>   | 20                      | 4                       | 12                    | SOIC-14, QFN-16, QSOP-16 |
| ISL6532     | ACPI Regulator/Controller for Dual-Channel DDR Memory Systems                                       | 2.5                       | 5                         | 0.8                         | 5                           | 0.8 to 5                 | 20                      | 3                       | 5                     | QFN-20                   |
| ISL6529     | Dual Regulator-Synchronous Rectified Buck PWM and Linear Power Controller                           | 3.3                       | 5                         | 0.8                         | 3.3                         | 0.8 to 3.3               | 15                      | 4                       | 12                    | SOIC-14, QFN-16          |
| ISL6529A    | Dual Regulator-Synchronous Rectified Buck PWM and Linear Power Controller                           | 3.3                       | 5                         | 0.8                         | 3.3                         | 0.8 to 3.3               | 15                      | 4                       | 12                    | SOIC-14, QFN-16          |
| ISL6528     | Dual Regulator-Standard Buck PWM and Linear Power Controller                                        | 3.3                       | 5                         | 0.8                         | 3.3                         | 0.8 to 3.3               | 15                      | 4                       | 5                     | SOIC-8                   |
| Part Number | Description                                                                                         | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT1</sub> (min) (V) | V <sub>OUT1</sub> (max) (V) | V <sub>OUT2</sub> (V)    | V <sub>OUT3</sub> (V)   | V <sub>OUT4</sub> (V)   | I <sub>OUT1</sub> (A) | Package                  |
| ISL6537     | ACPI Regulator/Controller for Dual-Channel DDR Memory Systems                                       | 4.5                       | 5.5                       | 0.8                         | V <sub>IN</sub>             | 50% of V <sub>OUT1</sub> | Adjustable down to 0.8V | Adjustable down to 0.8V | 25                    | QFN-28                   |

#### 3-in-1 PWM Switchers + Linears

| Part Number | Description                                                                   | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT1</sub> (min) (V) | V <sub>OUT1</sub> (max) (V) | V <sub>OUT2</sub> (V) | V <sub>OUT3</sub> (V) | I <sub>OUT1</sub> (A) | I <sub>OUT2</sub> (A) | Package            |
|-------------|-------------------------------------------------------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------|
| ISL6534     | Dual PWM with Linear                                                          | 3.3                       | 12                        | 0.6                         | 9                           | 0.6 to 9              | Adj.                  | 20                    | 20                    | EPTSSOP-24, QFN-32 |
| ISL6532A    | 3-in-1 ACPI Regulator/Controller for Dual Channel DDR and DDR2 Memory Systems | 2.5                       | 5                         | 0.8                         | 5                           | 0.8 to 5              | Adj.                  | 20                    | 3                     | QFN-28             |
| ISL6443     | 300kHz Dual, 180° Out-of-Phase, Step-Down PWM and Single Linear Controller    | 4.5                       | 24                        | 0.8                         | 24                          | 24                    | Adj.                  | 20                    | 20                    | QFN-28             |
| ISL6442     | 2.5MHz Dual, 180° Out-of-Phase, Step-Down PWM and Single Linear Controller    | 4.5                       | 24                        | 0.8                         | 24                          | 24                    | Adj.                  | 20                    | 20                    | QSOP-24            |
| ISL6441     | 1.4MHz Dual, 180° Out-of-Phase, Step-Down PWM and Single Linear Controller    | 4.5                       | 24                        | 0.8                         | 24                          | 24                    | Adj.                  | 20                    | 20                    | QFN-28             |
| HIP6018B    | Advanced PWM and Dual Linear Power Control                                    | 5                         | 5                         | 1.3                         | 3.5                         | Adj.                  | Adj.                  | 25                    | 0.2                   | SOIC-24            |

#### 4-in-1 PWM Switchers + Linears

| Part Number | Description                                                                        | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT1</sub> (min) (V) | V <sub>OUT1</sub> (max) (V) | V <sub>OUT2</sub> (V)    | V <sub>OUT3</sub> (V)             | V <sub>OUT4</sub> (V)  | I <sub>OUT1</sub> (A) | Package |
|-------------|------------------------------------------------------------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|--------------------------|-----------------------------------|------------------------|-----------------------|---------|
| ISL6548     | ACPI Regulator/Controller for Dual-Channel DDR Memory Systems                      | 4.5                       | 5.5                       | 0.8                         | V <sub>IN</sub>             | 50% of V <sub>OUT1</sub> | Adj. down to 0.8V                 | Adj. down to 0.8V      | 25                    | QFN-28  |
| ISL6537     | ACPI Regulator/Controller for Dual-Channel DDR Memory Systems                      | 4.5                       | 5.5                       | 0.8                         | V <sub>IN</sub>             | 50% of V <sub>OUT1</sub> | Adj. down to 0.8V                 | Adj. down to 0.8V      | 25                    | QFN-28  |
| ISL6236     | High-Efficiency, Quad-Output, Main Power Supply Controllers for Notebook Computers | 5.5                       | 25                        | 4.975 (adj. 0.7)            | 5.125 (adj. 5.5)            | 3.3 (adj. 0.5 to 2.5)    | 3.3 or 5 linear (adj. 0.7 to 4.5) | 3.3 always linear      | 20                    | QFN-32  |
| ISL6524     | VRM8.5 PWM and Triple Linear Power System Controller                               | 5                         | 5                         | 1.05                        | 1.825                       | 1.2 (also adj. higher)   | 1.5 (also adj. higher)            | 1.8 (also adj. higher) | 25                    | SOIC-28 |
| ISL6524A    | VRM8.5 PWM and Triple Linear Power System Controller                               | 5                         | 5                         | 1.05                        | 1.825                       | 1.2 (also adj. higher)   | 1.5 (also adj. higher)            | 1.8 (also adj. higher) | 25                    | SOIC-28 |
| ISL6523     | VRM8.5 Dual PWM and Dual Linear Power System Controller                            | 5                         | 5                         | 1.05                        | 1.825                       | 1.2 (also adj. higher)   | 1.5 (also adj. higher)            | 1.8 (also adj. higher) | 25                    | SOIC-28 |
| ISL6521     | PWM Buck DC/DC and Triple Linear Power Controller                                  | 5                         | 5                         | 0.8                         | 4.5                         | Adj.                     | Adj.                              | Adj.                   | 20                    | SOIC-16 |

## Switching Regulation

## 4-in-1 PWM Switchers + Linears continued

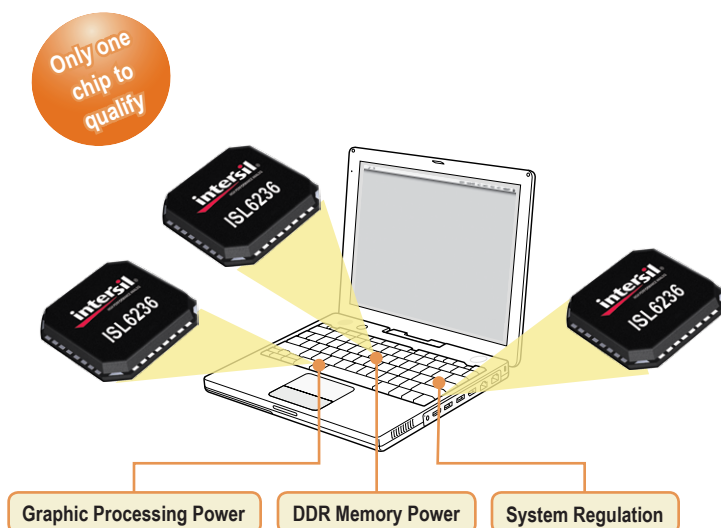
| Part Number | Description                                                           | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT1</sub> (min) (V) | V <sub>OUT1</sub> (max) (V) | V <sub>OUT2</sub> (V)         | V <sub>OUT3</sub> (V)  | V <sub>OUT4</sub> (V)  | I <sub>OUT1</sub> (A) | Package |
|-------------|-----------------------------------------------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|-------------------------------|------------------------|------------------------|-----------------------|---------|
| ISL6432     | PWM and Triple Linear Power Controller for Home Gateway Applications  | 5                         | 5                         | 0.8                         | 5                           | 2.5                           | 1.8                    | 1.5                    |                       | SOIC-16 |
| ISL6232     | High-Efficiency System Power Supply Controller for Notebook Computers | 5.5                       | 25                        | 3.25 (adj. 0.8)             | 3.35 (adj. 5.5)             | 5 (adj. 0.8 to 5.5)           | 3.3 linear             | 5 linear               | 12                    | QSOP-28 |
| HIP6521     | PWM and Triple Linear Power Controller                                | 5                         | 5                         | 0.8                         | 4.5                         | Adj.                          | Adj.                   | Adj.                   | 20                    | SOIC-16 |
| HIP6021     | Advanced PWM and Triple Linear Power Controller                       | 5                         | 5                         | 1.3                         | 3.5                         | 1.5 or 3.3 (also adj. higher) | 1.5 (also adj. higher) | 1.8 (also adj. higher) | 25                    | SOIC-28 |
| HIP6019B    | Advanced Dual PWM and Dual Linear Power Control                       | 5                         | 5                         | 1.3                         | 3.5                         | Adj.                          | Adj.                   | Adj.                   | 25                    | SOIC-28 |

## 5-in-1 PWM Switchers + Linears

| Part Number | Description                                                   | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT1</sub> (min) (V) | V <sub>OUT1</sub> (max) (V) | V <sub>OUT2</sub> (V)    | V <sub>OUT3</sub> (V)   | V <sub>OUT4</sub> (V)   | V <sub>OUT5</sub> (V)   | Package |
|-------------|---------------------------------------------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|--------------------------|-------------------------|-------------------------|-------------------------|---------|
| ISL6548A    | ACPI Regulator/Controller for Dual-Channel DDR Memory Systems | 5.5                       | 4.5                       | 0.8                         | V <sub>IN</sub>             | 50% of V <sub>OUT1</sub> | Adjustable down to 0.8V | Adjustable down to 0.8V | Adjustable down to 0.8V | QFN-28  |
| ISL6537A    | ACPI Regulator/Controller for Dual-Channel DDR Memory Systems | 4.5                       | 5.5                       | 0.8                         | V <sub>IN</sub>             | 50% of V <sub>OUT1</sub> | Adjustable down to 0.8V | Adjustable down to 0.8V | Adjustable down to 0.8V | QFN-28  |

## The Only Controller that Supports Three Major Power Functions in Notebook Computing

Intersil's **ISL6236** high-efficiency, multi-function quad output controller supports system regulation, DDR memory and graphics processing.



### Key Features

- Low component count saves space and cost
- Wide input voltage range (5.5V to 25V)
- Ultrasonic pulse-skipping mode maintains the switching frequency above 25kHz, eliminating noise in audio applications
- Pulse-skipping maximizes efficiency in light-load applications
- Fixed-frequency PWM mode reduces RF interference in sensitive applications
- Secondary feedback input maintains charge pump voltage

### Applications

- Notebook computers
- 3- and 4-cell Li+ battery-powered devices
- PDAs

## Switching Regulation

### ACPI Controllers

| Part Number | Description                                                  | Chip Set Supported                                                                    | 3.3<br>V <sub>DUAL</sub><br>Reg. | 5<br>V <sub>DUAL</sub><br>Reg. | Memory<br>Reg.<br>(V)   | Integrated<br>Clock<br>Reg. | Southbridge<br>Resume Well<br>Reg. (V) | VID<br>Reg.<br>(V) | 3.3<br>V <sub>SBY</sub><br>Reg. | Package         |
|-------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------|--------------------------------|-------------------------|-----------------------------|----------------------------------------|--------------------|---------------------------------|-----------------|
| ISL6506     | Multiple Linear Power Controller with ACPI Control Interface | i810, i815, i820, i845, i865, i875, i915, i925, i945, i955 for ICH4, ICH5, ICH6       | Y                                | Y                              | N                       | N                           | N                                      | N                  | Y                               | EPSON-8         |
| ISL6506A    | Multiple Linear Power Controller with ACPI Control Interface | i810, i815, i820, i845, i865, i875, i915, i925, i945, i955 for ICH4, ICH5, ICH6, ICH7 | Y                                | Y                              | N                       | N                           | N                                      | N                  | Y                               | EPSON-8         |
| ISL6506B    | Multiple Linear Power Controller with ACPI Control Interface | i810, i815, i820, i845, i865, i875, i915, i925, i945, i955 for ICH4, ICH5, ICH6, ICH8 | Y                                | Y                              | N                       | N                           | N                                      | N                  | Y                               | EPSON-8         |
| ISL6505     | Multiple Linear Power Controller with ACPI Control Interface | Springdale with ICH5                                                                  | Y                                | Y                              |                         | N                           |                                        | 1.2                | N                               | QFN-20, SOIC-20 |
| ISL6504     | Multiple Linear Power Controller with ACPI Control Interface | i845G with ICH4                                                                       | Y                                | Y                              |                         | N                           | 1.8                                    | 1.2                | N                               | SOIC-16, QFN-20 |
| ISL6504A    | Multiple Linear Power Controller with ACPI Control Interface | i845G with ICH4                                                                       | Y                                | Y                              |                         | N                           | 1.5                                    | 1.2                | N                               | SOIC-16, QFN-20 |
| HIP6503     | Multiple Linear Power Controller with ACPI Control Interface | i810/i820 with ICH2                                                                   | Y                                | Y                              | 2.5 or 3.3 (selectable) | Y                           | 1.8                                    |                    | N                               | SOIC-20         |
| HIP6501A    | Triple Linear Power Controller with ACPI Control Interface   | i810/i810e/i815/i820, SiS620/5595, SiS630, VIA Apollo ProMedia133                     | Y                                | Y                              | 2.5 or 3.3 (selectable) |                             |                                        |                    | N                               | SOIC-16         |

### Single Output

#### Synchronous Buck/GPU

| Part Number | Description                                                                                                                       | V <sub>IN</sub><br>(min)<br>(V) | V <sub>IN</sub><br>(max)<br>(V) | V <sub>OUT</sub><br>(min)<br>(V) | V <sub>OUT</sub><br>(max)<br>(V) | I <sub>OUT</sub><br>(max)<br>(A) | V <sub>BIAS</sub><br>(V) | I <sub>CC</sub><br>(min)<br>(mA) | I <sub>CC</sub><br>(typ)<br>(mA) | Package                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|--------------------------|----------------------------------|----------------------------------|---------------------------|
| ISL8502     | Wide Input Range 2A Synchronous Buck Regulator                                                                                    | 4.5                             | 14                              | 0.6                              | V <sub>IN</sub>                  | 2.5                              |                          |                                  |                                  | QFN-24                    |
| ISL8118     | 3.3V to 20V Single-Phase PWM Controller with Integrated 2A/4A MOSFET Drivers                                                      | 3.3                             | 20                              | 0.6                              | V <sub>IN</sub>                  | 30                               |                          |                                  |                                  | QFN-28                    |
| ISL8106     | Wide V <sub>IN</sub> , 7V to 25V, Single-Phase PWM Controller with Integrated MOSFET Drivers                                      | 7                               | 25                              | 0.6                              | 3.3                              | 12                               | N/A (internal)           |                                  | 2.2                              | QFN-16                    |
| ISL8105     | 1V to 12V Single-Phase Synchronous Buck Converter PWM Controller with Integrated MOSFET Gate Drivers                              | 1                               | 12                              | 0.6                              | 5                                | 25                               | 5, 12                    |                                  | 3.2                              | QFN-10, SOIC-8            |
| ISL8105A    | 1V to 12V Single-Phase Synchronous Buck Converter PWM Controller with Integrated MOSFET Gate Drivers                              | 1                               | 12                              | 0.6                              | 5                                | 25                               | 5, 12                    |                                  | 3.2                              | QFN-10, SOIC-8            |
| ISL8105B    | 1V to 12V Single-Phase Synchronous Buck Converter PWM Controller with Integrated MOSFET Gate Drivers and Extended Soft-Start Time | 1                               | 12                              | 0.6                              | 5                                | 25                               | 5, 12                    |                                  | 3.2                              | QFN-10, SOIC-8            |
| ISL8104     | Synchronous Buck PWM Controller                                                                                                   | 1.2                             | 12                              | 0.6                              | 5                                | 30                               | 8 to 12                  |                                  | 51                               | SOIC-14, QFN-16           |
| ISL6545     | 5V or 12V Single Synchronous Buck PWM Controller                                                                                  | 1                               | 12                              | 0.6                              | 5                                | 25                               | 5, 12                    |                                  | 3.2                              | DFN-10, SOIC-8            |
| ISL6545A    | 5V or 12V Single Synchronous Buck PWM Controller                                                                                  | 1                               | 12                              | 0.6                              | 5                                | 25                               | 5, 12                    |                                  | 3.2                              | DFN-10, SOIC-8            |
| ISL6541     | Flexible 5V or 12V Synchronous Buck PWM Controller                                                                                | 1                               | 12                              | 0.8                              | V <sub>IN</sub>                  | 20                               |                          |                                  |                                  |                           |
| ISL6540A    | Single-Phase Buck PWM Controller with Integrated High Speed MOSFET Driver and Pre-Biased Load Capability                          | 3.3                             | 20                              | 0.6                              | V <sub>IN</sub>                  | 30                               |                          |                                  |                                  | QFN-28                    |
| ISL6535     | Synchronous Buck PWM Controller                                                                                                   | 1.2                             | 12                              | 0.6                              | 5                                | 30                               | 8 to 12                  |                                  | 51                               | SOIC-14, QFN-16           |
| ISL6527     | Single Synchronous Buck PWM Controller                                                                                            | 2.5                             | 5                               | 0.8                              | V <sub>IN</sub>                  | 20                               | 3.3 to 5                 | 2.6                              | 3.3                              | SOIC-14, QFN-16           |
| ISL6527A    | Single Synchronous Buck PWM Controller                                                                                            | 2.5                             | 5                               | 0.8                              | V <sub>IN</sub>                  | 20                               | 3.3 to 5                 | 2.6                              | 3.3                              | SOIC-14, QFN-16           |
| ISL6526     | Single Synchronous Buck PWM Controller                                                                                            | 2.5                             | 5                               | 0.8                              | V <sub>IN</sub>                  | 20                               | 3.3 to 5                 | 6.1                              | 6.9                              | SOIC-14, QFN-16           |
| ISL6526A    | Single Synchronous Buck PWM Controller                                                                                            | 2.5                             | 5                               | 0.8                              | V <sub>IN</sub>                  | 20                               | 3.3 to 5                 | 6.1                              | 6.9                              | SOIC-14, QFN-16           |
| ISL6525     | Buck and Synchronous-Rectifier PWM Controller                                                                                     | 2.5                             | 12                              | 1.2                              | V <sub>IN</sub>                  | 25                               | 12                       |                                  | 5                                | SOIC-14                   |
| ISL6522     | Buck and Synchronous Rectifier PWM Controller                                                                                     | 2.5                             | 12                              | 0.8                              | V <sub>IN</sub>                  | 25                               | 12                       |                                  | 5                                | SOIC-14, TSSOP-14, QFN-16 |
| ISL6522A    | Buck and Synchronous Rectifier PWM Controller                                                                                     | 2.5                             | 12                              | 0.8                              | V <sub>IN</sub>                  | 25                               | 12                       |                                  | 5                                | SOIC-14, QFN-16           |
| ISL6522B    | Buck and Synchronous Rectifier PWM Controller                                                                                     | 2.5                             | 12                              | 0.8                              | V <sub>IN</sub>                  | 25                               | 12                       |                                  | 5                                | SOIC-14, TSSOP-14, QFN-16 |

## Switching Regulation

## Synchronous Buck/GPU continued

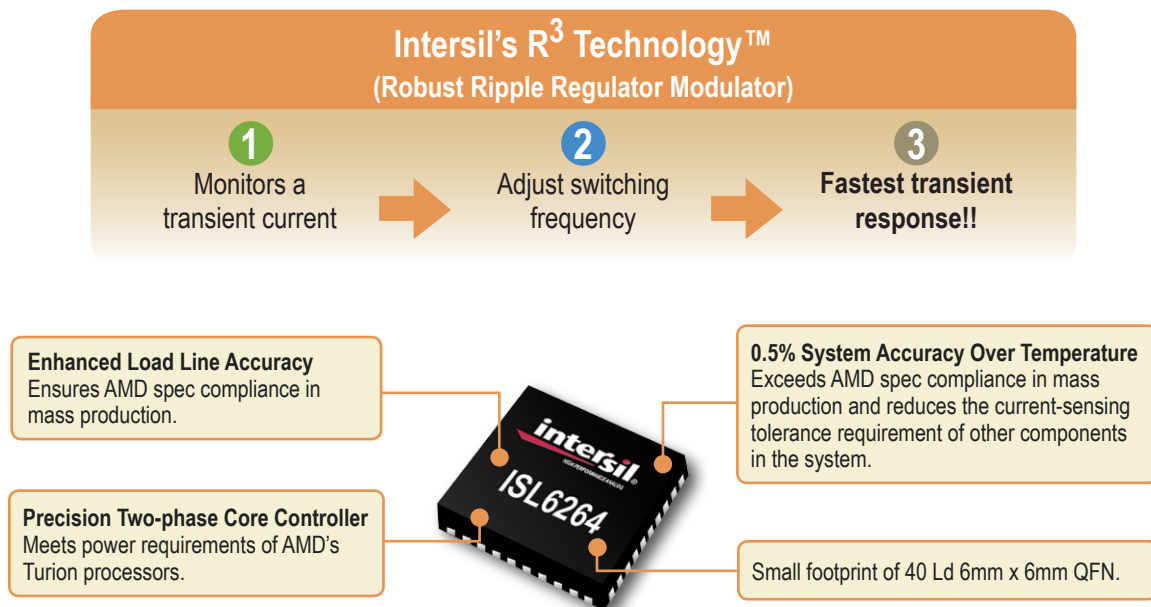
| Part Number | Description                                                                                      | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>OUT</sub> (min) (V) | V <sub>OUT</sub> (max) (V) | I <sub>OUT</sub> (max) (A) | V <sub>BIAS</sub> (V) | I <sub>CC</sub> (min) (mA) | I <sub>CC</sub> (typ) (mA) | Package                   |
|-------------|--------------------------------------------------------------------------------------------------|---------------------------|---------------------------|----------------------------|----------------------------|----------------------------|-----------------------|----------------------------|----------------------------|---------------------------|
| ISL6520     | Single Synchronous Buck PWM Controller                                                           | 2.5                       | 5                         | 0.8                        | 5                          | 20                         | 5                     |                            | 3.2                        | QFN-16, SOIC-8            |
| ISL6520A    | Single Synchronous Buck PWM Controller                                                           | 2.5                       | 5                         | 0.8                        | 5                          | 20                         | 5                     |                            | 3.2                        | QFN-16, SOIC-8            |
| ISL6439     | Single Synchronous Buck PWM Controller for Broadband Gateway Applications                        | 3.3                       | 5                         | 0.8                        | 3.3                        | 20                         | 3.3                   | 6.1                        | 6.9                        | SOIC-14, QFN-16           |
| ISL6439A    | Single Synchronous Buck PWM Controller for Broadband Gateway Applications                        | 3.3                       | 5                         | 0.8                        | 3.3                        | 20                         | 3.3                   | 6.1                        | 6.9                        | SOIC-14, QFN-16           |
| ISL6420     | Advanced Single Synchronous Buck PWM Controller                                                  | 4.5                       | 16                        | 0.6                        | V <sub>IN</sub> -0.5V      | 20                         | 5                     | 1.4                        | 2                          | QFN-20, QSOP-20           |
| ISL6420A    | PWM Controller with Wide V <sub>IN</sub> , Start-Up into Pre-Bias Load                           | 4.5                       | 28                        | 0.6                        | V <sub>IN</sub> -0.5V      | 20                         | 5                     | 1.4                        | 2                          | QFN-20, QSOP-20           |
| ISL6406     | Single Synchronous PWM Controller                                                                | 3.3                       | 5                         | 0.8                        | 5                          | 20                         | 3.3 to 5              | 7                          | 9.8                        | QFN-16, SOIC-16, TSSOP-16 |
| ISL6269     | High Performance Notebook PWM Controller with Bias Regulator and Audio-Frequency Clamp           | 7                         | 25                        | 0.6                        | 3.3                        | 25                         | N/A (internal)        | 2                          |                            | QFN-16                    |
| ISL6269A    | Single-Phase PWM Controller for Notebook Power Applications                                      | 7                         | 25                        | 0.6                        | 3.3                        | 25                         | 5                     | N/A                        | 1.7                        | QFN-16                    |
| ISL6269B    | Single-Phase PWM Controller with Audio Switching Frequency Clamp for Notebook Power Applications | 7                         | 25                        | 0.6                        | 3.3                        | 25                         | 5                     | N/A                        | 1.7                        | QFN-16                    |
| ISL6268     | High Performance Notebook PWM Controller                                                         | 7                         | 25                        | 0.6                        | 3.3                        | 25                         | 5                     | N/A                        | 1.7                        | QSOP-16                   |
| ISL6263     | 5-Bit VID Single-Phase GPU Controller (Napa)                                                     | 5                         | 25                        | 0.412                      | 1.2875                     | 25                         | 5                     | N/A                        | 2.5                        | QFN-32                    |
| ISL6263A    | 5-Bit VID Single-Phase GPU Controller (Santa Rosa)                                               | 5                         | 25                        | 0.412                      | 1.2875                     | 25                         | 5                     | N/A                        | 2.5                        | QFN-32                    |
| HIP6012     | Buck and Synchronous-Rectifier PWM Controller                                                    | 2.5                       | 12                        | 1.3                        | V <sub>IN</sub>            | 25                         | 12                    |                            | 5                          | SOIC-14, TSSOP-14         |
| HIP6006     | Buck and Synchronous-Rectifier PWM Controller                                                    | 2.5                       | 12                        | 1.3                        | V <sub>IN</sub>            | 25                         | 12                    |                            | 5                          | SOIC-14, TSSOP-14         |

## Li-Ion Battery Chargers

| Part Number | Description                                                                                   | V <sub>IN</sub> (min) (V) | V <sub>IN</sub> (max) (V) | V <sub>BAT</sub> (V) | Voltage Accuracy (%) | Input Current Limit Accuracy (%) | Accurate Battery Trickle Charge Current Limit (%) | Battery Charge Accuracy (%) | Applications                                                                                                                                     | Package         |
|-------------|-----------------------------------------------------------------------------------------------|---------------------------|---------------------------|----------------------|----------------------|----------------------------------|---------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| ISL88731    | Highly-Integrated Battery Charger with SMBus Interface                                        | 7                         | 25                        | 1 to 4 cells         | ±0.5                 | ±3                               |                                                   | ±3                          | Li-Ion and Li-Polymer battery charging for NB computers and other battery-operated devices powered from 1 cell up to 4 cells                     | QFN-28          |
| ISL6257     | Highly-Integrated NVDC-I Battery Charger                                                      | 7                         | 25                        | 2 to 4 cells         | ±0.5                 | ±3                               |                                                   | ±3                          | Li-Ion and Li-Polymer battery charging for NB computers, NVDC applications and other battery-operated devices powered from 2 cells up to 4 cells | QFN-48          |
| ISL6255     | Highly-Integrated Battery Charger with Automatic Power Source Selector                        | 7                         | 25                        | 2 to 4 cells         | ±0.5                 | ±3                               |                                                   | ±3                          | Li-Ion and Li-Polymer battery charging for NB computers and other battery-operated devices powered from 2 cells up to 4 cells                    | QSOP-28, QFN-28 |
| ISL6255A    | Highly-Integrated Battery Charger with Automatic Power Source Selector                        | 7                         | 25                        | 2 to 4 cells         | ±0.5                 | ±3                               | ±25                                               | ±3                          | Li-Ion and Li-Polymer battery charging for NB computers and other battery-operated devices powered from 2 cells up to 4 cells                    | QSOP-28, QFN-28 |
| ISL6253     | Highly-Integrated Battery Charger with Automatic Source Selector and Automatic Trickle Charge | 7                         | 25                        | 2 to 4 cells         | ±0.5                 | ±3                               |                                                   | ±4                          | Li-Ion and Li-Polymer battery charging for NB computers and other battery-operated devices powered from 2 cells up to 4 cells                    | QSOP-28, QFN-28 |
| ISL6251A    | Highly-Integrated Battery Charger                                                             | 7                         | 25                        | 2 to 4 cells         | ±0.5                 | ±3                               |                                                   | ±3                          | Li-Ion and Li-Polymer battery charging for NB computers and other battery-operated devices powered from 2 cells up to 4 cells                    | QSOP-24, QFN-28 |

# Intersil's Two-Phase Core Controller Provides Fast Transient Response and Improved Load-Line Accuracy for AMD Turion® Mobile CPUs

Intersil's **ISL6264** core controller uses Intersil's patented **R<sup>3</sup> Technology™** for better transient response and two interleaved channels to reduce output voltage ripple with fewer components.



## Intel® Santa Rosa Platform Solutions with R<sup>3</sup> Technology

- **ISL6260:** Up to 3-phase PWM controller with external drivers for Napa platform (Centrino Duo Mobile Technology)
- **ISL6260C:** Up to 3-phase PWM controller with external drivers for Santa Rosa platform with P<sub>MON</sub> (Centrino Duo Mobile Technology)
- **ISL6261A:** Single-phase core controller with internal driver for LV/ULV Santa Rosa platform with P<sub>MON</sub> (Centrino Duo Mobile Technology)
- **ISL6262A:** Two-phase core controller with internal driver for Santa Rosa platform with P<sub>MON</sub> (Centrino Duo Mobile Technology)
- **ISL6263A:** Five-bit VID single-phase controller with P<sub>MON</sub> for Santa Rosa platform (dynamic controller for better overall efficiency)

All Santa Rosa platform solutions are backward-compatible with our Napa platform solutions



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