X86-64

- follow on to x86
- all Intel + AMD chips
- AMD did x86-64
- Intel tried Itanium
  
  \[ \text{very long instruction word (VLIW)} \]

  \[ \Rightarrow \text{failed!} \]

\[ \Rightarrow \text{x86-64 extends x86 to 64 bits} \]

\[ \Rightarrow \text{new base pointer for stack} \]

\[ \Rightarrow \text{lots more registers} \]

\[ \Rightarrow \text{TONS more instructions} \]

\[ \Rightarrow \text{new calling convention} \]
Figure 3.35 Integer registers. The existing eight registers are extended to 64-bit versions, and eight new registers are added. Each register can be accessed as either 8 bits (byte), 16 bits (word), 32 bits (double word) or 64 bits (quad word).