

# Application Note

## 184pin DDR Unbuffered DIMM RawCard 'D' / 'E' for NonECC

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Memory division

# Background

**Subject** : Non ECC Unbuffered DIMM Gerber (Raw Card “D”, “E”)

## **Background** :

- To get the better performance, Samsung developed the new unbuffered DIMM gerber only for x8 Non-ECC type.
- All characteristics are fully compatible with ECC common gerber.
- Non ECC Gerber has a better signal integrity, power and Vref noise characteristics than ECC common design.
- Non ECC Gerber Passed the JEDEC ballot. (2003/08/13)

# What's Non-ECC Gerber

## What Non ECC Gerber for ?

- To enhance Power and Vref noise immunity by placing de-cap its pins as closely as possible
- To gain better signal integrity with balanced topology
- All characteristics are fully compatible with Rawcard 'A', 'B'

**The purpose of Non ECC gerber is to get the better performance by deleting ECC component and enhancing VREF and power de-cap.**

- Non ECC + ECC Gerber



- Non ECC only design (new)



Power and Vref de-cap is placed its pins as closely as possible

# Applied product

- Non ECC Gerber applied to Samsung's new die product. (x8 1Rank/ 2Rank)

	Non ECC U-DIMM (x8)		ECC U-DIMM (x8)	
	~DDR333	DDR400	~DDR333	DDR400
128Mb E-die				
256Mb E-die	○			
256Mb F-die	○	○		
512Mb B-die	○			