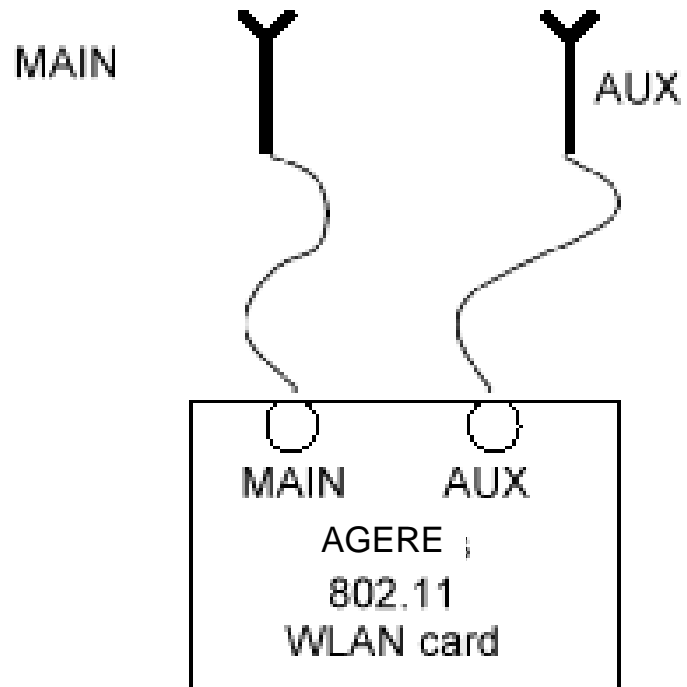


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# *Antenna diversity in mini-PCI*



## *Diversity - What is that ?*

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- **Similar to human beings: talking with one mouth and listening with two ears**
- **Two antennas are available (internal or external)**
- **One antenna is only active for transmission**
- **Two antennas are available for reception**
- **The receiver chooses during the training sequence which antenna delivers the better signal. It switches to this antenna for the reception of the whole packet.**

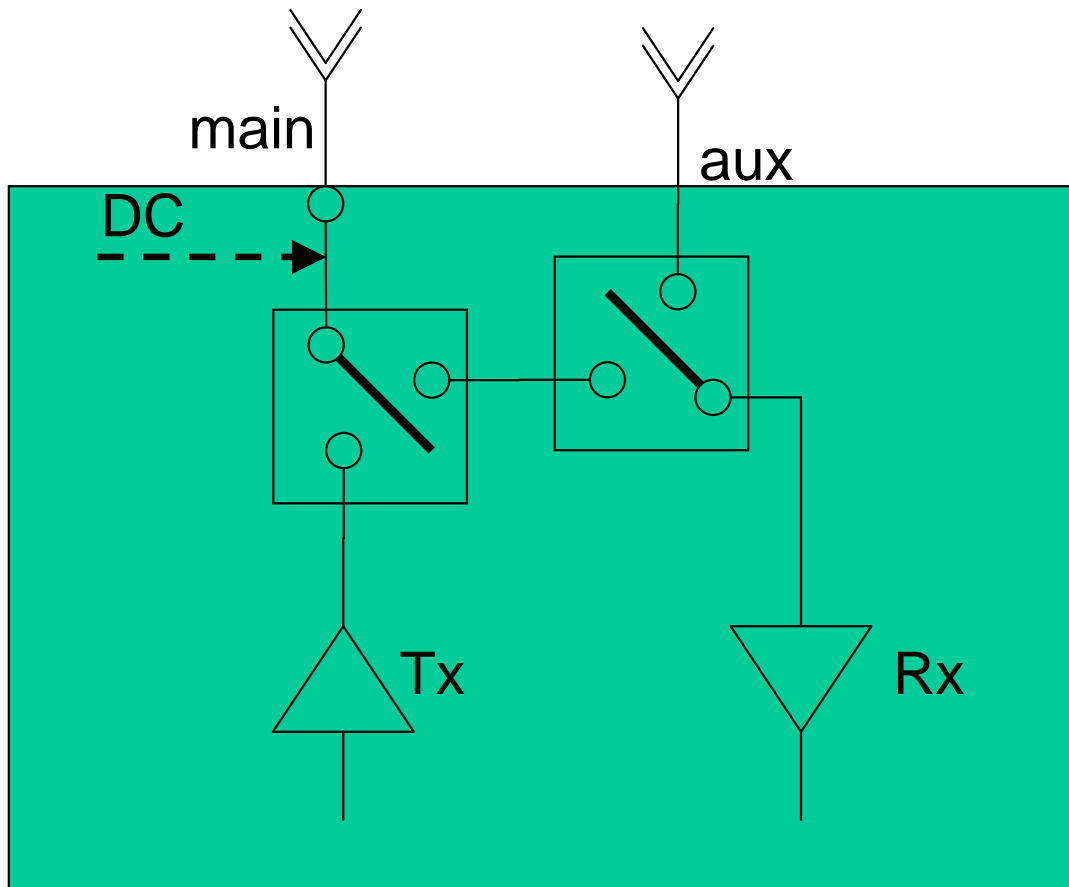
# Diversity - Why ?

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- **Average receiving sensitivity is increased by 3dB**
- **Multipath environments especially results in fading signals. There is a 10% chance to be hit by those effects without diversity, but only a 1% chance to be hit with diversity.**
- **Offers more freedom in designing antennas for notebooks, handhelds etc.**
- **.....**

# Diversity - How ?

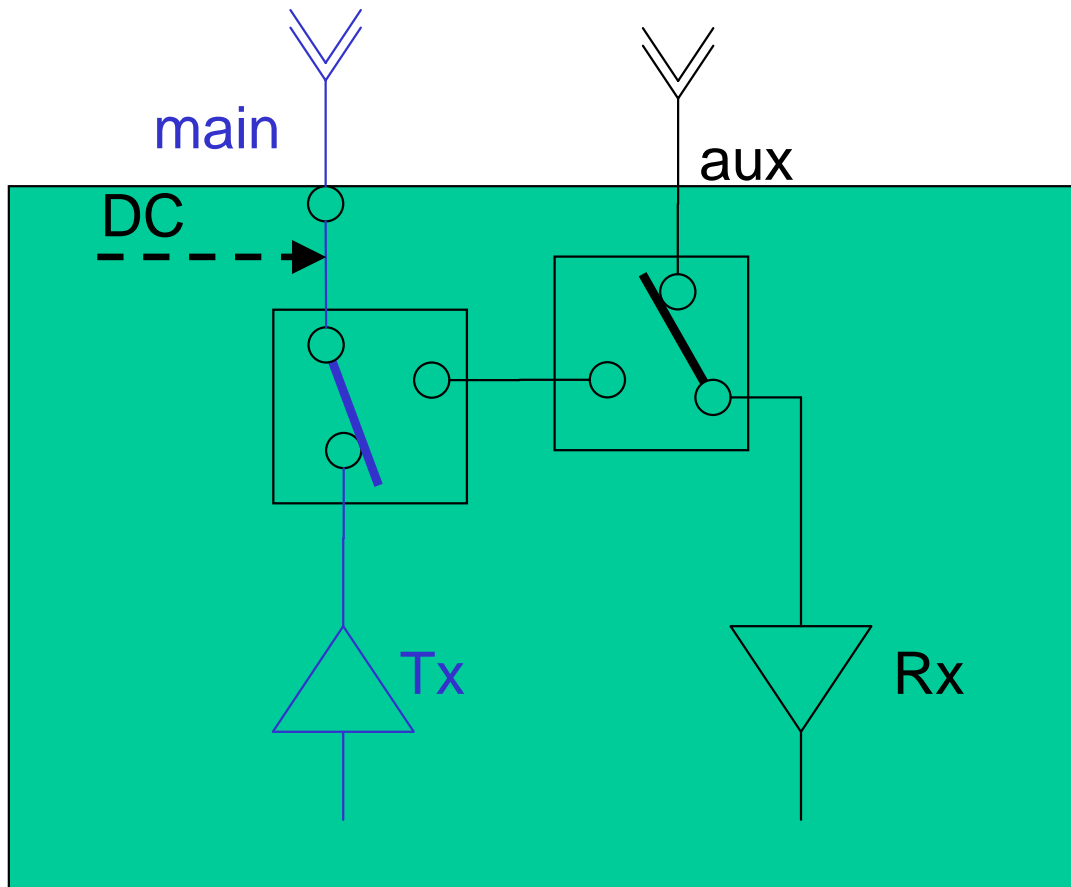
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**Card sketch:  
antenna part**

# Diversity (1)

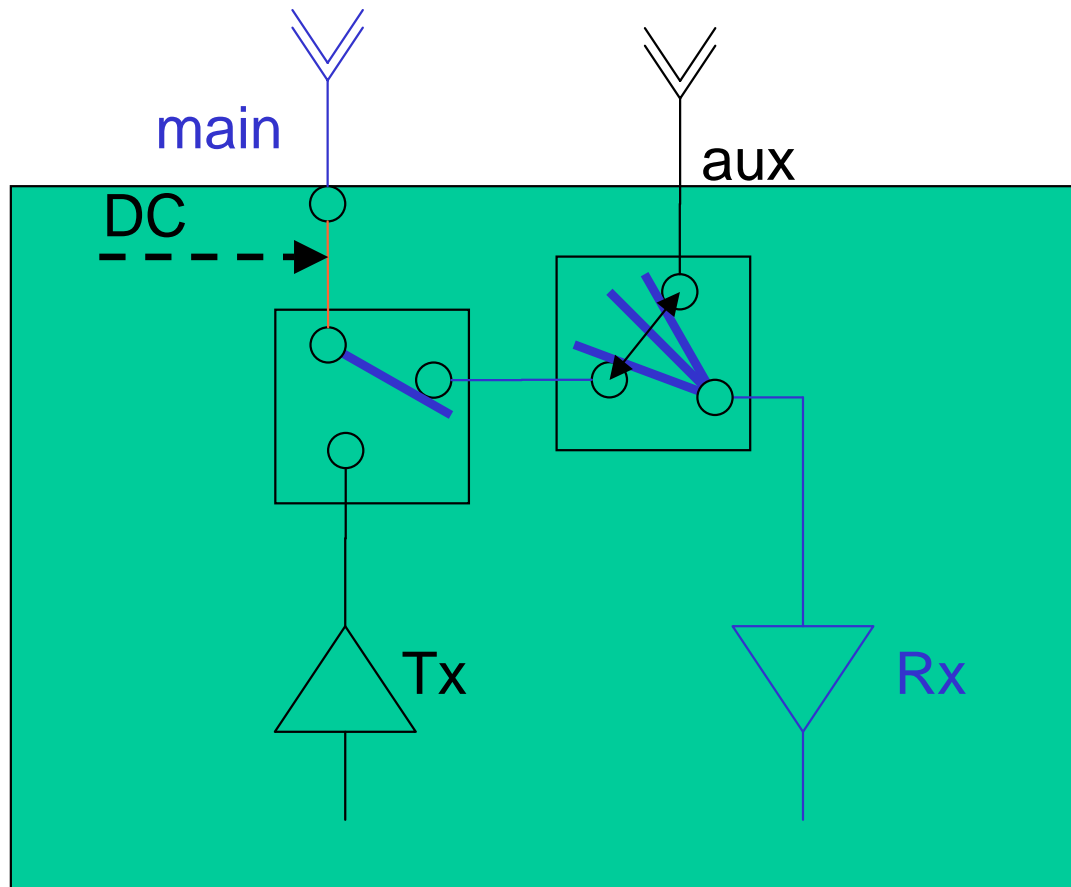
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**Card transmits**

# Diversity (2)

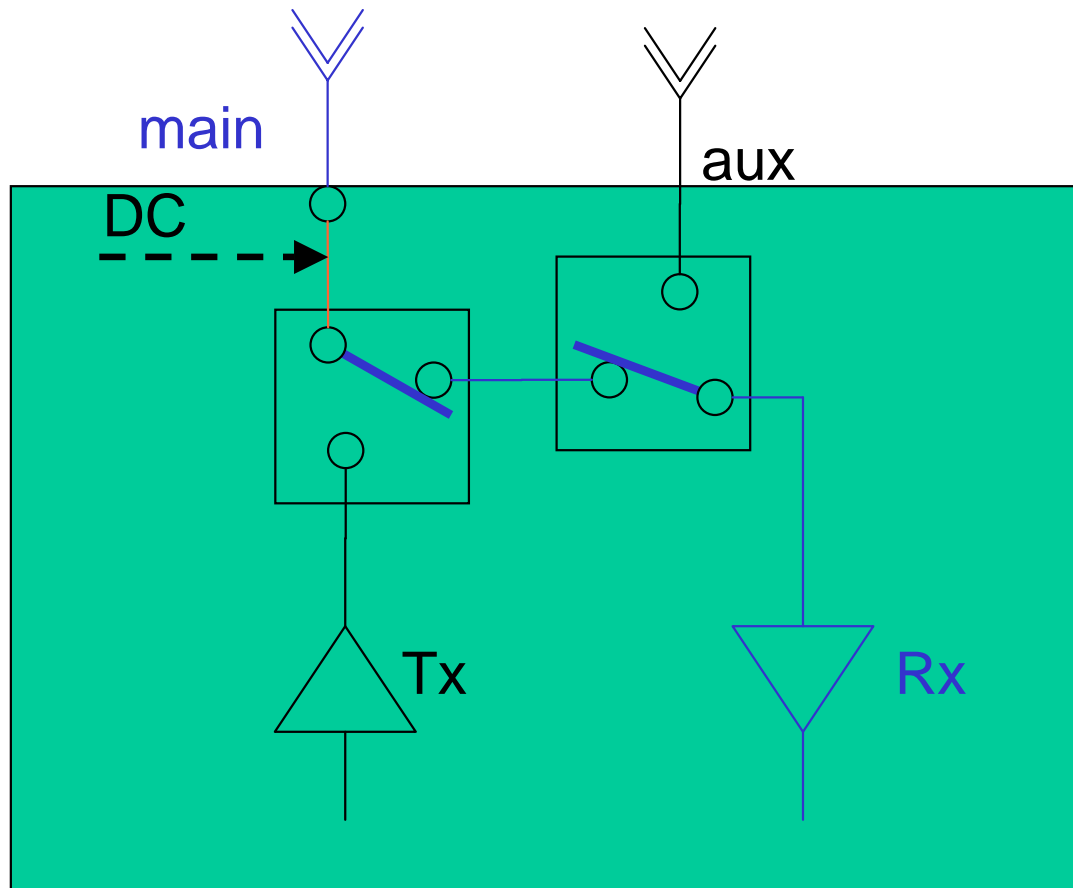
---



**Card receives  
the training sequence,  
switches antennas,  
checks quality**

# Diversity (3)

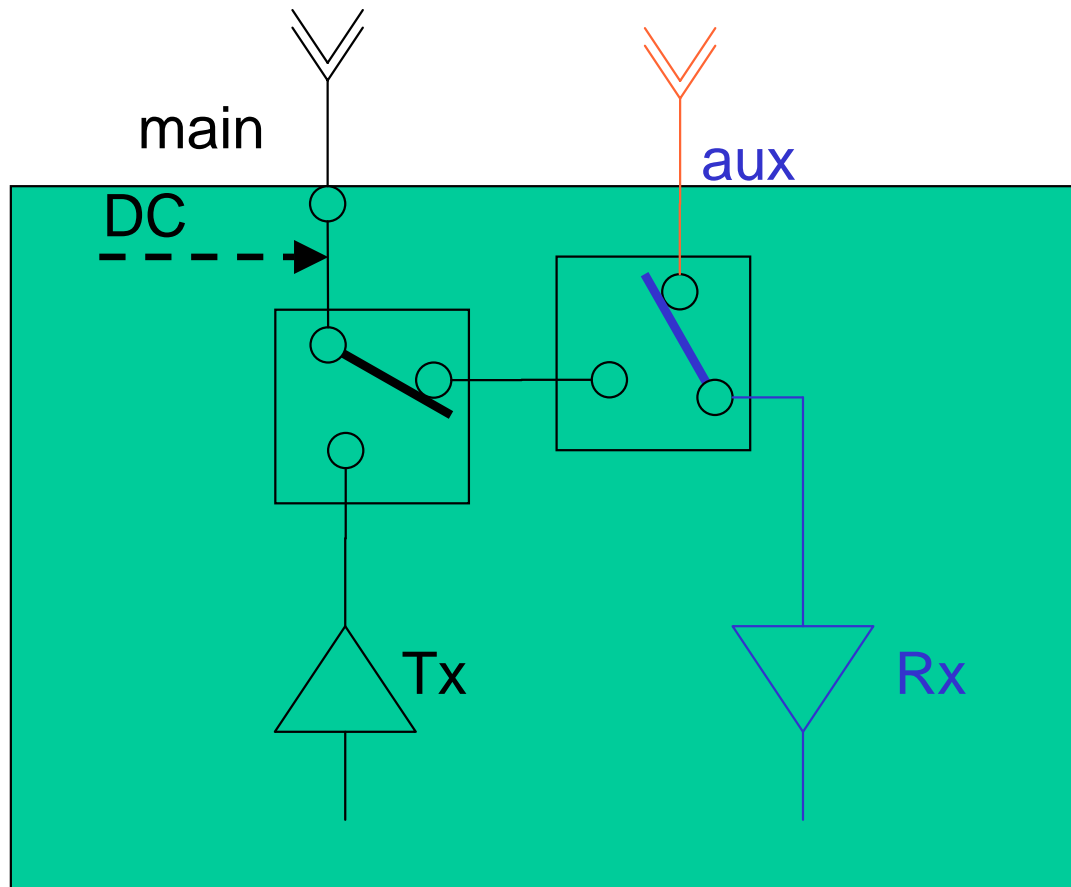
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**Card receives,  
main antenna  
signal is better**  
agere<sup>systems</sup>

# Diversity (4)

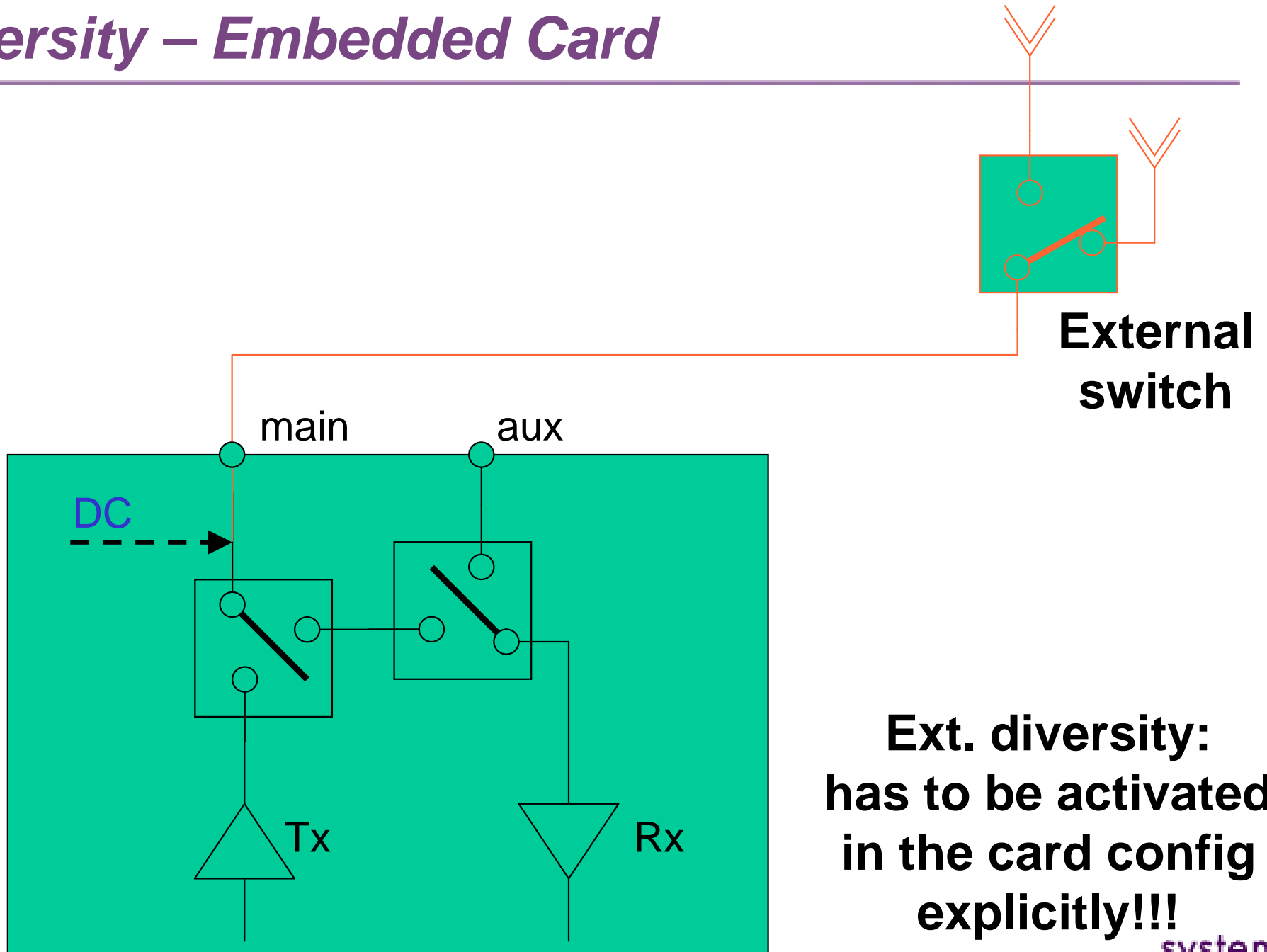
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**Card receives,  
aux antenna  
signal is better**  
systems  
**agere**

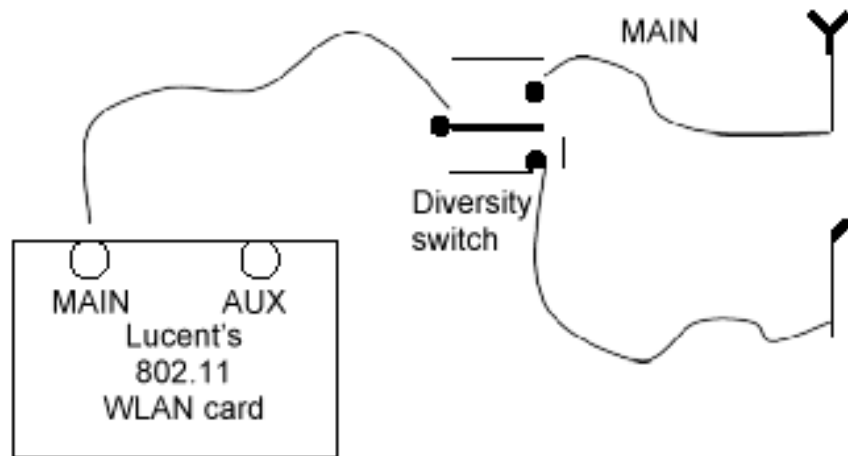


# Diversity – Embedded Card



**Ext. diversity:  
has to be activated  
in the card config  
explicitly!!!**

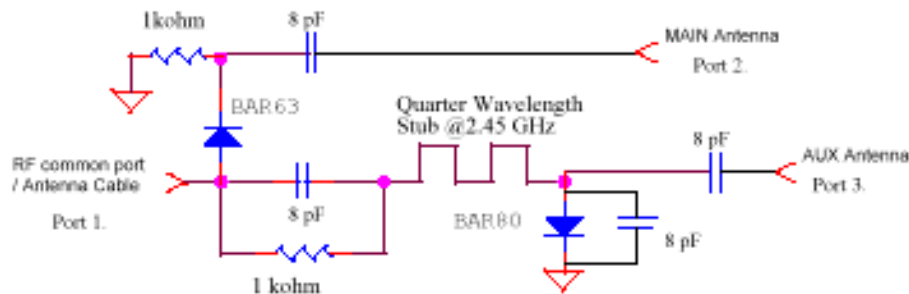
# Antenna (External diversity solutions)



## External diversity

- use one (MAIN) connector attaching to two antennas
- Antennas are interconnected with externally provided diversity switch.

## Diversity switch



Diversity switching is achieved by injecting of +3 V / 0 V DC through the coax cable into the Port 1. (RF common port)