

REV	CHANGE DESCRIPTION	NAME	DATE
A	Release		6-24-03
B	New Logo		6-14-04
C	RX Termination Resistors Placement Correction		6-21-04

Any assistance, services, comments, information, or suggestions provided by SMSC (including without limitation any comments to the effect that the Company's product designs do not require any changes) (collectively, "SMSC Feedback") are provided solely for the purpose of assisting the Company in the Company's attempt to optimize compatibility of the Company's product designs with certain SMSC products. SMSC does not promise that such compatibility optimization will actually be achieved. Circuit diagrams utilizing SMSC products are included as a means of illustrating typical applications; consequently, complete information sufficient for construction purposes is not necessarily given. Although the information has been checked and is believed to be accurate, no responsibility is assumed for inaccuracies. SMSC reserves the right to make changes to specifications and product descriptions at any time without notice.

DOCUMENT DESCRIPTION
Component Placement Checklist for the LAN91C111, 128-pin TQFP Package

 	SMSC 80 Arkay Drive Hauppauge, New York 11788	
	Document Number	Revision
	CC524322	C

Component Placement Checklist for LAN91C111

Information Particular for the 128-pin TQFP Package

1. Place the RJ45 connector, the magnetics and the LAN91C111 TQFP as close together as possible.
2. If No. 1 is not possible, keep the RJ45 connector and the magnetics as close as possible. This will allow remote placement of the LAN91C111 TQFP.
3. Select and place the magnetics as to set up the best routing scheme from the LAN91C111 TQFP to the magnetics to the RJ45 connector. There are many styles and sizes of magnetics with different pin outs to facilitate this operation.
4. Place the $49.9\ \Omega$ TX termination pull-up (TPO+, pin 14) as close to the magnetics as possible.
5. Place the $49.9\ \Omega$ TX termination pull-up (TPO-, pin 15) as close to the magnetics as possible.
6. Place the (2) $24.9\ \Omega$ RX series resistors as close to the LAN91C111 TQFP device as possible.
7. Place the (2) $24.9\ \Omega$ RX termination resistors and the $0.01\ \mu\text{F}$ capacitor (C_{rxterm}) (TPI+, pin 17 & TPI-, pin 18) as close to the LAN91C111 TQFP as possible. The combination of the (4) $24.9\ \Omega$ resistors form a 100 ohm termination for the RX channel.
8. Place the $75\ \Omega$ cable side center tap termination resistors and the $1000\ \mu\text{F}$, 2KV capacitor (C_{magterm}) cap as close to the magnetics as possible.
9. Place the Unused Wire Pair termination resistors and the $1000\ \mu\text{F}$, 2KV capacitor (C_{rjterm}) as close to the RJ45 connector as possible.
10. Place the Digital Ground / Chassis Ground shorting resistor near the RJ45 in a logical place to short the two planes.
11. Place the (10) decoupling capacitors for the LAN91C111 TQFP as close to each separate power pin as possible. Using an SMD_0603 package will make this task easier.
12. Place the 25 MHz crystal, the series EMI resistor and the associated 10 – 30 pF capacitors as close together as possible and as close to the LAN91C111 TQFP (XTAL1, pin 127 & XTAL2, pin 128) as possible.
13. Place the RBIAS resistor as close to pin 12 of the LAN91C111 TQFP as possible.
14. Bulk capacitors for each power plane can reside anywhere on the plane.
15. If an MII Physical Device is being incorporated, place the MII device as to allow the best routing possible. If proper PCB design techniques are followed, proximity to the LAN91C111 TQFP is not critical. The designer should group the RJ45 connector, the magnetics and the MII Physical Device as close together as possible.