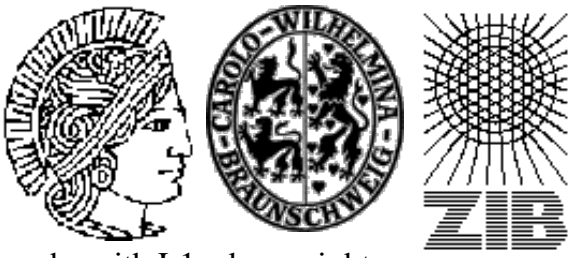
Testset ES10FST



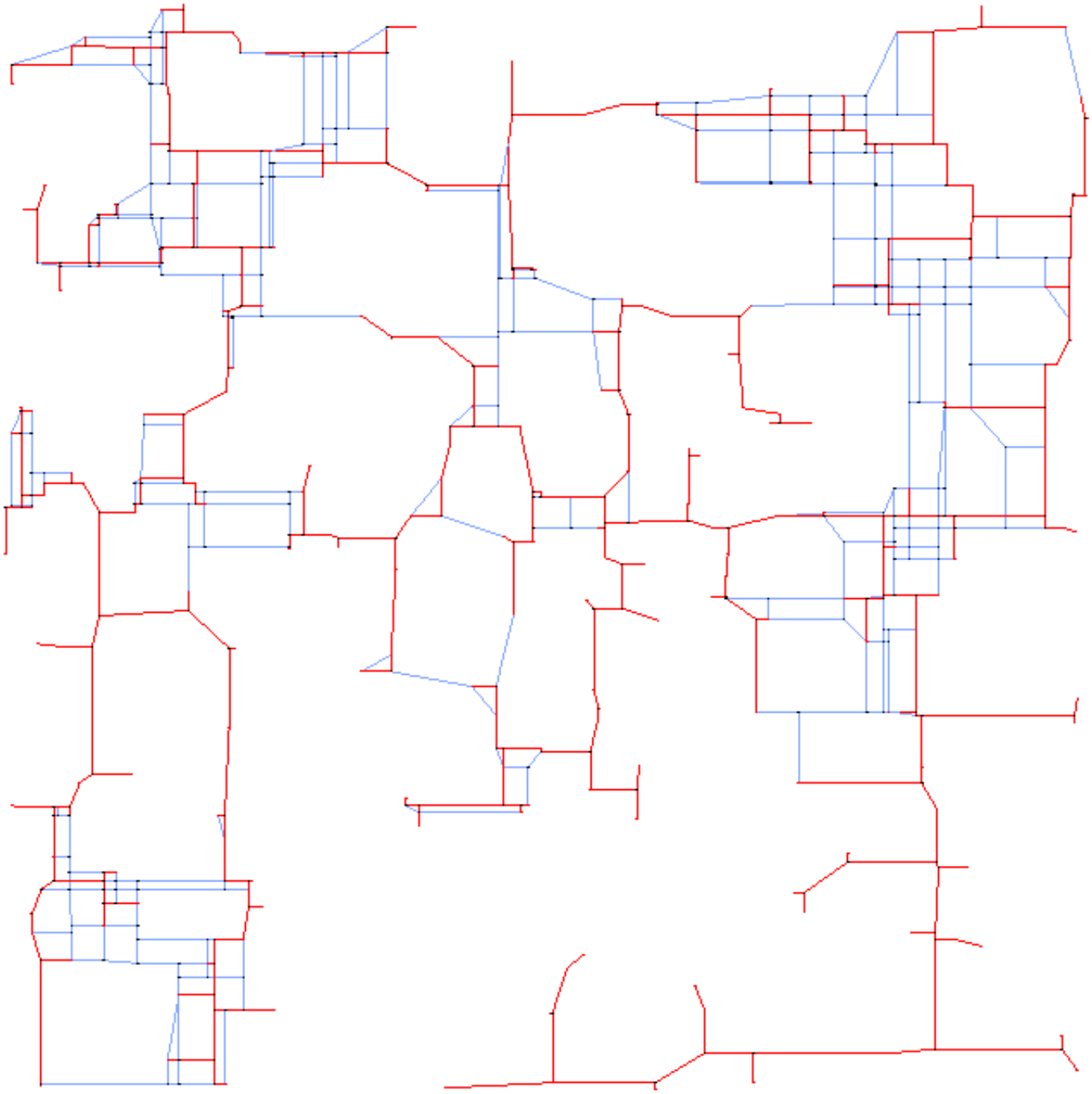
These instances are the result of the following procedure. First there were files with random generated points in the plane on a 10,000,000 by 10,000,000 grid.
These points serve as terminals and were converted to rectalinear graphs with L1 edge weights, by building the Hanan grid (see *Han66*).

Then these graphs were preprocessed with GeoSteiner a Software for computing Full-Steiner-Sets by M. Zachariasen and D.M. Warme . For a description of the Algorithm see *War97* and *WWZ00* .

The original point sets are from the OR-Library named ES10 to ES10000 corresponding to the number of points given.

Some results on solving the smaller instances without FST-preprocessing are published in *KM98* . Since there seems to be no reason why today someone should try to solve these instances without FST-preprocessing anymore we only list the preprocessed ones.

Here is an picture of *es250fst01* with solution:



The files can be found in the download section.

Name	|V|	|E|	|T|	DC	Opt
es10fst01	18	20	10	?s	**22920745**
es10fst02	14	13	10	?s	**19134104**
es10fst03	17	20	10	?s	**26003678**
es10fst04	18	20	10	?s	**20461116**
es10fst05	12	11	10	?s	**18818916**

es10fst06	17	20	10	?s	**26540768**
es10fst07	14	13	10	?s	**26025072**
es10fst08	21	28	10	?s	**25056214**
es10fst09	21	29	10	?s	**22062355**
es10fst10	18	21	10	?s	**23936095**
es10fst11	14	13	10	?s	**22239535**
es10fst12	13	12	10	?s	**19626318**
es10fst13	18	21	10	?s	**19483914**
es10fst14	24	32	10	?s	**21856128**
es10fst15	16	18	10	?s	**18641924**

The column **DC** classifies the difficulty of the instance.

L
: Solvable by usage of local preprocessing. Typical examples are the SD-Test, BD-n Tests and FST computations. Neither a global upper nor lower bound needs to be computed.

P
: Solvable by polynomial time algorithms, like dual ascent in combination with primal heuristic, a integral LP formulation or advanced preprocessing like reduced cost criteria or the RCR-Test.

NP
: No polynomial time algorithm is known. Use of an exponential time enumeration sceme like Branch-and-Bound is neccessary.

The letter after class gives an impression how long it takes to solve the problem using state-of-the-art soft- and hardware. **s**ecounds means less than a minute (this includes instances which can be solved in fractions of a second). **m**inutes means less than an hour. **h**ours is less than a day and **d**ays is less than a week. **w**eeks mean it takes really a long time to solve this instance. **?** means the instance is not solved or the time is not known.

If the number in the **Opt** column is written in *italics* the optimum is not known. The number given is the best know upper bound.

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